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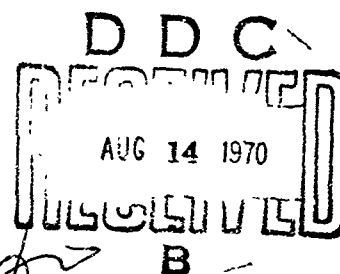
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**REAL PROPERTY MAINTENANCE ACTIVITIES
(RPMA) FUNCTIONAL DESIGN
FOR THE INTEGRATED FACILITIES SYSTEM**

PRC R-1209
Volume II, Part 3
(June 1970

Prepared for
Department of the Army
Deputy Chief of Staff for Logistics
Director of Installations



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PLANNING RESEARCH CORPORATION
LOS ANGELES, CALIFORNIA WASHINGTON, D. C.

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FOREWORD

This is one in a series of Integrated Facilities System (IFS) documents, and a detailed discussion of background information is not contained herein. Rather, reference is made to the following IFS documents:

Planning Research Corporation, D-1506, Integrated Facilities System, August 1967.

Planning Research Corporation, D-1506, Integrated Facilities System, October 1967.

Planning Research Corporation, PRC R-1104, Program Definition for the Design and Development of an Integrated Facilities System (IFS), March 1968.

Planning Research Corporation, Technical Proposal B-68-08-471A, A Proposal for the Design and Development of an Integrated Facilities System (IFS), 30 September 1968.

Planning Research Corporation, Technical Proposal B-63-08-674A, Continued Development of the Integrated Facilities System (IFS)-Phase IIB, 8 October 1969.

Planning Research Corporation, PRC R-1209, Volume I, System Definition for the Integrated Facilities System, June 1969.

Planning Research Corporation, PRC R-1209, Volume II, Part 1, Real Property Maintenance Activities (RPMA) Management Function Analysis, June 1969.

Planning Research Corporation, PRC R-1209, Volume II, Part 2, RPMA Module Analysis for the Integrated Facilities System, December 1969. AD-869 272L

Planning Research Corporation, PRC R-1209, Volume III, Part 1, Facility Requirements Analysis for the Integrated Facilities System, March 1969. AD-869 212L

Planning Research Corporation, PRC R-1209, Volume III, Part 1, Facility Planning Module Analysis and Design for the Integrated Facilities System, December 1969.

Planning Research Corporation, PRC R-1209, Volume IV, New Construction Module Analysis and Design for the Integrated Facilities System, December 1969.

Planning Research Corporation, PRC R-1209, Volume V, Assets Storage and Retrieval Module Analysis and Design for the Integrated Facilities System, November 1969.

Planning Research Corporation, PRC R-1209, Volume VI, Part 1, Facility Condition and Readiness Definition for the Integrated Facilities System, April 1969.

Planning Research Corporation, PRC R-1209, Volume VI, Part 2, Facility Condition Field Test and Impact Analysis for the Integrated Facilities System, September 1969.

Planning Research Corporation, PRC R-1209, Volume VII, ADP Analysis for the Integrated Facilities System, August 1969.

Planning Research Corporation, PRC R-1209, Volume VIII, Phase IIB Development Plan for the Integrated Facilities System, August 1969.

Planning Research Corporation, PRC R-1209, Volume IX, Economic Analysis of the CONUS Integrated Facilities System, April 1970.

Planning Research Corporation, PRC R-1209, Volume X, Executive Management Requirements Analysis for the Integrated Facilities System, May 1970.

The following Phase IIB documents will be published at a later date:

<u>R. No.</u>	<u>Vol.</u>	<u>Proposed Title</u>
1209	XI	Implementation Plan for the Integrated Facilities System
1209	XII	Facility Allowance Criteria for the Integrated Facilities System
1209	XIII	Detailed Functional System Requirements (DFSR) for the Integrated Facilities System
		<u>Part 1</u> Executive Summary
		<u>Part 2</u> Functional Management System Description
		<u>Part 3</u> Specifications for Automated System
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I. INTRODUCTION

This document presents the design of an echelon-oriented or vertical real property maintenance activities (RPMA) information system. Headquarters, Department of the Army (HQ DA) and lower echelons of the Army need this system in order to better plan, program, budget, defend, and supervise expenditure of resources needed to operate and maintain Army facilities.

A. Deficiencies in the Present RPMA System

RPMA today is managed primarily through procedures of the Army financial management system. These procedures do not provide information of the type and at the time required for effective RPMA management. To be more specific, the present system falls short in the following areas:

1. It does not provide visibility of valid RPMA requirements during the resource decisionmaking process.
2. RPMA information carried in the comptroller's financial channel does not correlate accurately with information carried in the RPMA channel and the real property assets accounting channel.
3. RPMA information used in the management process above installation level is not uniformly structured from the planning through the programming, budgeting, execution, and review (PPBER) phases of the management cycle.
4. Visibility of RPMA support provided to directors of programs which use and finance the operation and maintenance of facilities is poor. For example, Five-Year Defense Program (FYDP) program directors are not systematically informed of the condition of facilities occupied by their activities, on the quality and effectiveness of RPMA support rendered, or on the requirements and impact of shortfalls in RPMA financing.
5. Functional RPMA managers (facility managers) at echelons above installation are not informed of the degree to which RPMA standards are met at installation level.

6. Facility component information, needed for better visibility of RPMA functional management, is not provided and reported.

7. The response time for answering queries from facility managers above installation is slow.

8. There is a lack of structured and comprehensive RPMA backup information that can be easily retrieved during management reviews and analysis.

B. Benefits of the Proposed RPMA System Design

The RPMA system design presented in this document will support more effective RPMA management at all echelons. More specifically:

1. It provides valid RPMA requirements to resource decision-makers during the planning and programming phases of the PPBER cycle.

2. It removes most of the RPMA data from the comptroller's financial channel and places them in a strengthened RPMA channel.

3. It provides uniform RPMA data elements and reports which follow directly from one phase of the PPBER cycle to the next.

4. It identifies, by functional category, the RPMA resources required by and support provided to FYDP program directors and base operation's program element directors.

5. It incorporates the facility condition methodology developed in an earlier phase of the IFS program and this informs line and facility managers of the quality and effectiveness of RPMA support rendered and the degree to which RPMA standards are met at installation level.

6. It provides for visibility of facility components, and, for reporting purposes, it combines facilities into standard similar groups based on the Facility Classes and Construction Categories Code.

7. By identifying what information is available in each of five reports at each echelon, it ensures more rapid response to queries from facility managers above installation level.

8. It provides structured information in greater detail than now exists. When automated, this information can be rapidly retrieved for management review and analysis.

C. Basic Elements of the RPMA System Design

The RPMA system design presented in this document is based upon four fundamental principles:

- The Five-Year Defense Program (FYDP) is the guiding force for all Department of Defense (DOD) programs. The Army's RPMA program must therefore relate directly to FYDP programs and appropriate program elements.
- Resource management encompasses all phases of the financial planning and budgetary cycle: planning, programming, budgeting, execution, and review. Therefore, management of the RPMA program must be closely synchronized with the financial and budgetary PPBER cycle.
- Line and facility managers at all levels are responsible for operation and maintenance of Army facilities. The vertical RPMA system must therefore provide to each echelon from installation to HQ DA that information appropriate to its scope of responsibility.
- DOD has established four functional categories which define RPMA. They are:
 - 9 - Operation of utilities
 - 10 - Maintenance of real property
 - 11 - Minor construction
 - 12 - Other engineering support

The vertical RPMA system must therefore be responsive to this categorization.

The basic elements that characterize the RPMA system design presented in this document stem from the four fundamental principles. The basic elements of the system are summarized as follows:

1. Facilities at installation level are assigned or, if necessary, prorated to the FYDP program and the appropriate program element which they support. RPMA information is then collected and reported by FYDP program/program element.

2. Five uniform, standardized RPMA management reports are synchronized with and support the financial planning and budgetary PPBER cycle.

3. These reports include RPMA resource information and data from all applicable appropriations programs and other RPMA fund sources, not just the Operations and Maintenance, Army (OMA) appropriation.

4. These reports include the priority of required work. Established priorities then provide the basis for management decisions on resource allocation.

5. Facility managers at each echelon, in coordination with program/program element directors, validate, consolidate, and summarize RPMA data and information from the next lower echelon. They make RPMA decisions commensurate with their level of responsibility and provide guidance as required to subordinate echelons.

6. Facility managers provide summary financial data to be used in reports in the comptroller financial reporting channel. These data include only summary figures for functional categories 9, 10, 11, and 12. These summary figures, properly coordinated at each echelon, are reported in appropriate financial or budgetary reports. Facility managers defend the summary figures by providing additional data and information as required.

7. Facility managers, who collect and maintain RPMA data by FYDP program/program element, make recommendations to program/program element directors on RPMA resources required to support the facilities occupied or used by these line managers. Line managers, not facility managers, make final decisions on RPMA resources allocated to support their programs. However, facilities managers provide the backup information for and defend RPMA programs and budgets.

8. Facility managers [the RPMA office in Deputy Chief of Staff for Logistics (DCSLOG) and the Office of the Chief of Engineers (OCE) at HQ DA] provide continuous RPMA program development, identify RPMA goals, and issue RPMA program guidance, as required during the PPBER cycle.

9. Trained facility inspectors, supervised by facility managers, systematically inspect facilities to determine facility condition and unconstrained requirements. The information they collect provides the basis for valid RPMA requirements. Although the Backlog of Essential Maintenance and Repair (BEMAR) as now defined in DOD instructions can be derived from the reports in the RPMA system, BEMAR is not specifically included in these reports. The reason that BEMAR is not included in the RPMA system design is that it addresses only a portion of all valid RPMA requirements; the portion that it includes is subject to a wide variation in interpretation.

10. The data base for the vertical RPMA system design presented in this document includes all the data elements, data items, and data use identifiers used in the five uniform and standardized RPMA reports. It does not include all of the data used in the day-to-day operation and management of RPMA at installation level. The latter data are included in the horizontal facilities work management system, described in greater detail in Section V, but not included in this design. Appendix B lists the data included in the vertical RPMA system design; Appendix C lists some of the data used in the horizontal work management system at installations but not included in the RPMA system design.

11. The RPMA system presented in this document can be implemented in either manual or automated mode. Those features that are suitable for early implementation in the manual mode are identified in Section IV; however, certain features such as various displays—of groups of similar facilities, against program element, against priority, against condition, against facility component—should not be attempted without computer support.

D. Method of Design and Design Verification

The RPMA system presented in this document was designed by a team of system analysts each specializing in one or more of the following disciplines: facilities engineering; finance, budget, and business management; military organizations and systems; computer applications; and information systems. This team interviewed representatives of the

facilities engineering division, OCE, in depth; obtained information from the RPMA office, Office of the Deputy Chief of Staff for Logistics (ODCSLOG); and interviewed members of the Integrated Facilities System (IFS) Project Advisory Group in the Washington area.

As a result of these interviews, the team prepared initial drafts of a data element list, report forms, and flow charts which showed the PPBER phases of the RPMA process at each echelon. These documents presented a preliminary design of the vertical RPMA system. Members of the team then visited a representative sample of installations and commands to verify and adjust the preliminary design.

Representatives of post engineers, comptrollers, ODCSLOG's, and data processing activities at field installations, major subordinate commands (MSC's), and major Army field commands (MAFC's) reviewed the preliminary design, suggested changes in level of detail, and recommended types of data appropriate for each echelon. All installations and commands expressed a need for an RPMA system such as the one presented. Although they felt that they would require additional resources to implement the system, they were enthusiastic about it, and most of them expressed a desire to be a part of any developmental tests that might be conducted. The suggestions and recommendations made by the field have largely been incorporated in the design. For a list of activities visited, see Appendix G.

E. Report Organization

Section II contains a general description of the IFS, of which the vertical RPMA system is a part. This overview of the IFS is similar to those contained in the design reports previously published on new construction, assets storage and retrieval, and facility planning.

Section III presents an overview of the RPMA system design, explaining verbally and demonstrating, by means of flow charts, the present procedures for RPMA programming, budgeting, execution, and review. After pointing out the inadequacies of present procedures, Section III also presents, verbally and with RPMA report forms and flow charts, an outline of the proposed RPMA system design to include

a planning phase, and a demonstration of the proposed system's ability to correct the inadequacies of present procedures.

Section IV contains the details of the vertical RPMA system design. Because of its volume, it is published under separate cover. Subsections IV.C. and IV.D. present a notional design. For each PPBER function, subsection IV.C. contains a function narrative, a series of detailed flow charts, a description of each logical operation on each flow chart, a description of the inputs to and outputs from each operation, and a copy of the RPMA report produced at each echelon. Subsection IV.D. contains detailed flow charts for each echelon, rather than for each function. This subsection is provided to help installations and commands visualize their parts in the system. Subsection IV.E. contains text and detailed flow charts for commands that, for one reason or another, do not fit easily into the notional design presented in subsections IV.C. and IV.D. These variations are divided into three categories:

- Strategic Communications Command (STRATCOM), The Surgeon General (TSG), Army Security Agency (ASA), Military Traffic Management and Terminal Service (MTMTS), and the United States Military Academy (USMA)
- Army Materiel Command (AMC), less Government-Owned, Contractor-Operated (GOCO)
- GOCO

Section V contains a brief description of current horizontal work management systems, both manual and automated, and their interface with the vertical RPMA system design presented in this report.

Appendix A contains a glossary of acronyms and terms. Appendix B contains a listing and description of the data elements, data items, and data use identifiers used in the vertical RPMA system. Appendix C contains a list of data used in the horizontal work management system, but not in the vertical RPMA system. Appendix D contains an analysis made by H. B. Maynard and Company, Inc., of work performance

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standards in Department of the Army Pamphlet (DAP) 420-5. Appendix E deals with the percentage of work performed that must be covered by predetermined labor/time standards. Appendix F is a listing of groups of similar facilities. Appendix G is a list of agencies, field installations, and commands consulted during design of the vertical RPMA system.

II. OVERVIEW OF THE INTEGRATED FACILITIES SYSTEM

A. General

The IFS is a management information system that supports the management functions (i.e., planning, programming, budgeting, execution, and performance evaluation) related to real property resources at all echelons of command (i.e., installation, major subordinate command (MSC), major Army field command (MAFC), and Headquarters, Department of the Army) worldwide.

The Phase IIA analysis and design was originally divided into five modular areas: RPMA, New Construction, Assets Storage and Retrieval, Facility Planning, and Facility Condition and Readiness. During Phase IIA, the modular areas of the system were redefined into the five management areas known as: RPMA, New Construction, Assets Accounting, Facility Planning, and Facility Management. Thus IFS supports the above referenced five management functions through the five management areas.

The remainder of this section expands this description of IFS in terms of the landscape of IFS functions, organizations addressed by IFS, and objectives of IFS.

B. Landscape of IFS Functions

The landscape of IFS functions consists of three major subsections:

- Structure of IFS
- Management areas and information flow within each echelon
- Information flow between echelons, and information flow between IFS and external systems

1. Structure of IFS

The hierarchical IFS structure (functional, not organizational) is depicted in Exhibit II-1. There are five IFS management areas (i.e., Assets Accounting, Facility Planning, New Construction, Real Property Maintenance Activities (RPMA), and Facilities

Management) within each Army echelon (i.e., HQ DA, MAFC, MSC, and installation). Each management area is composed of functions differing in number and type--in some cases, between echelons; in turn, each function is composed of operations differing in number and type--in some cases, between echelons. Each operation uses, generates, or modifies data in performing its particular processing activity (e.g., computation, comparison, file maintenance, file generation, and report generation).

Exhibit II-1 depicts the IFS as being echelon oriented (i.e., the first row of circles in the exhibit), with each echelon denoted by a unique number as follows:

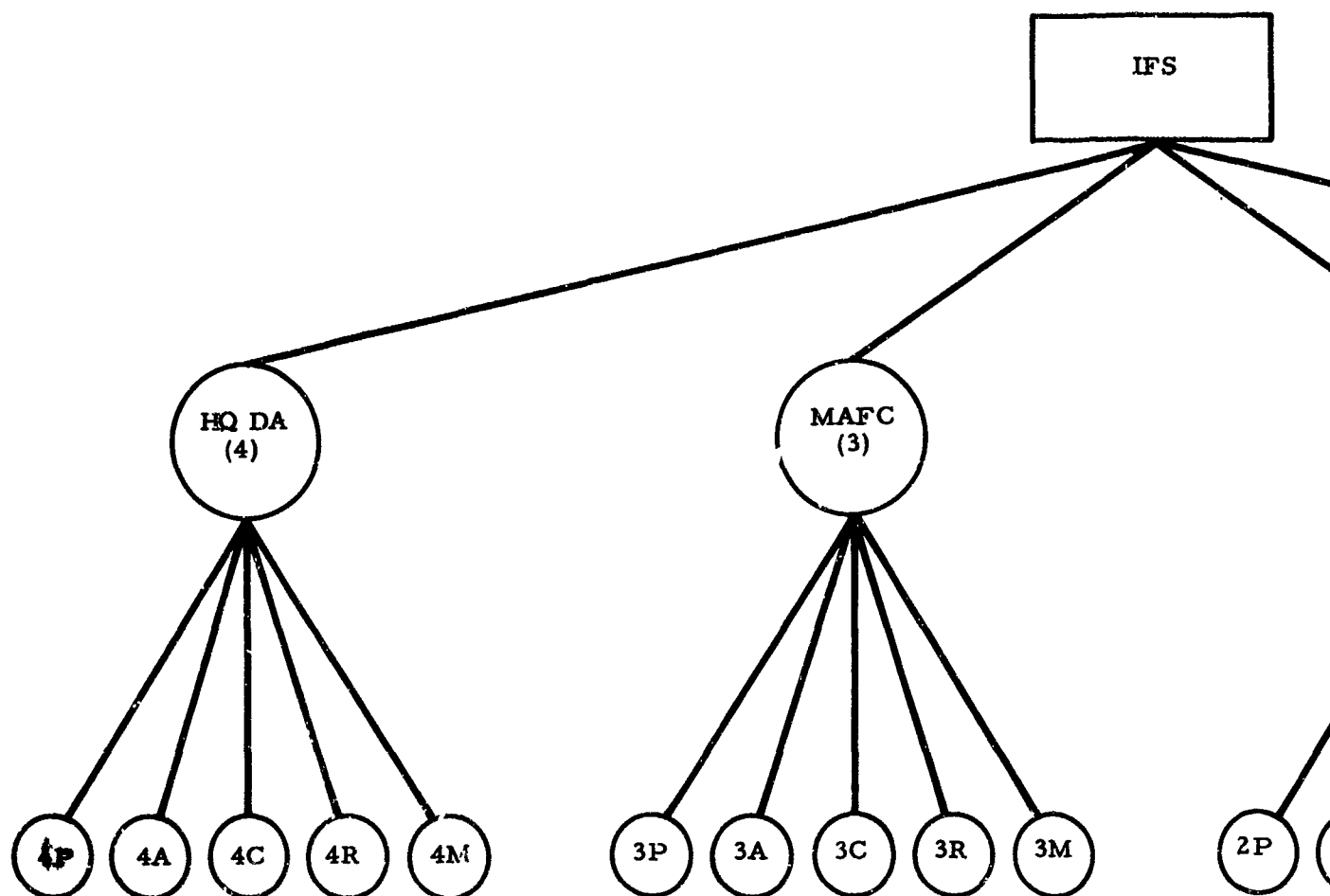
- 4 denotes HQ DA
- 3 denotes MAFC
- 2 denotes MSC
- 1 denotes installation

The next row of circles represents the five management areas within each echelon. Each management area is denoted by a unique letter as follows:

- P denotes Facility Planning
- A denotes Assets Accounting
- C denotes New Construction
- R denotes RPMA
- M denotes Facilities Management

As an example, code 4C uniquely specifies the New Construction management area at HQ DA. The next level of circles depicts the functions composing a particular management area at a particular echelon or level of command. The fourth level of circles denotes the operations associated with each function. The fifth level of circles denotes the input to, and output from, each operation. The last row of circles denotes the data elements contained in the input and output data.

A codification scheme, which will be fully described in Section IV, provides for the unique identification of functions, operations, input, and output. The data elements that are input to, or output from, an operation may be common to several operation/function inputs/outputs.



A

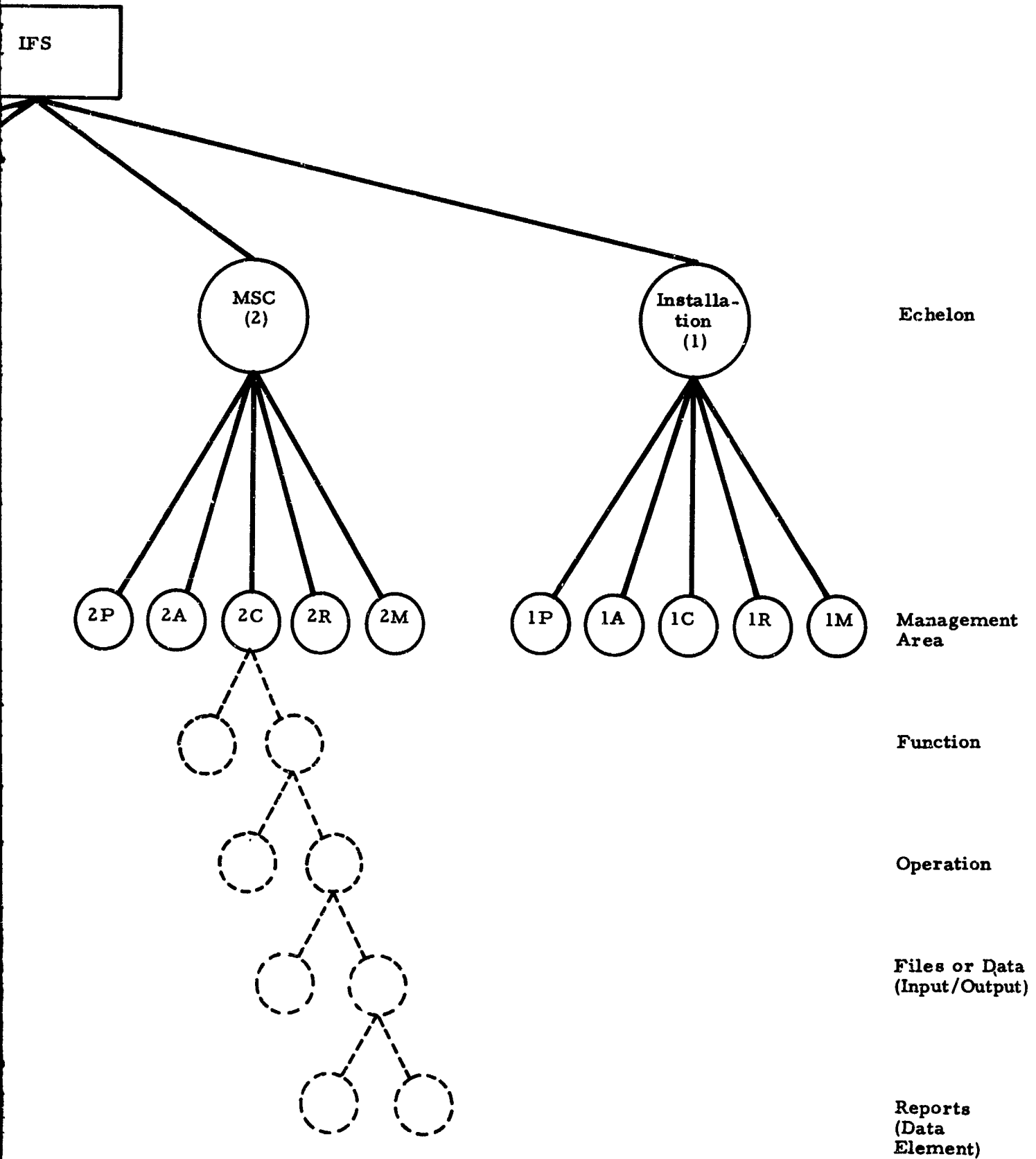


EXHIBIT II-1 STRUCTURE

B

Since they are not unique throughout the IFS, they are not coded. However, the fact that they are specified for each input and output makes it possible to trace the flow of information through the system at each echelon and between echelons.

Exhibit II-2, an example of the IFS functional structure with named functions, operations, input/output, and data elements for each management area at the installation level, is presented to facilitate the readers' understanding of the IFS structure presented in the preceding discussion and in Exhibit II-1.

The IFS installation level, as well as all other IFS "echelons," consists of five management areas. For explanatory purposes, one management area--New Construction--will be traced in detail to the data element level in the following discussion.

New Construction appears in the second tier (proceeding top to bottom) of the tree structure presented in Exhibit II-2. One of the New Construction functions at the installation level is programming (shown in the third tier), which includes such operations as "formulate construction programs" (shown in the fourth tier). An input to this operation is the Military Construction Line Item Data, DD Form 1391 or like document (shown in the fifth tier), containing data elements such as "proposed appropriation" (shown at the extremity of the tree structure, i.e., the last tier).

It should be noted that the example in Exhibit II-2 shows neither the interfaces between management areas, the functions composing the management areas, the operations composing each function, nor the order of functions and operations. For example, within the New Construction programming function, the "formulate construction programs" operation is not necessarily the first operation that would be encountered in the processing logic of the programming function.

The following subsection briefly describes, for each echelon, the management areas, their respective functions, and the impact on IFS. Management area interfaces and external system interfaces are presented.

2. Management Areas and Information Flow Within Each Echelon

The following presents a brief, echelon-oriented description of the Assets Accounting, Facility Planning, New Construction, and RPMA management areas. Since the Facilities Management area deals with information acquired from the IFS data base and the four functional IFS management areas to expand the executive dimension in decision-making, it is not discussed separately. For the Assets Accounting, Facility Planning, RPMA, and New Construction management areas, however, a brief description of the functions within each management area is included.

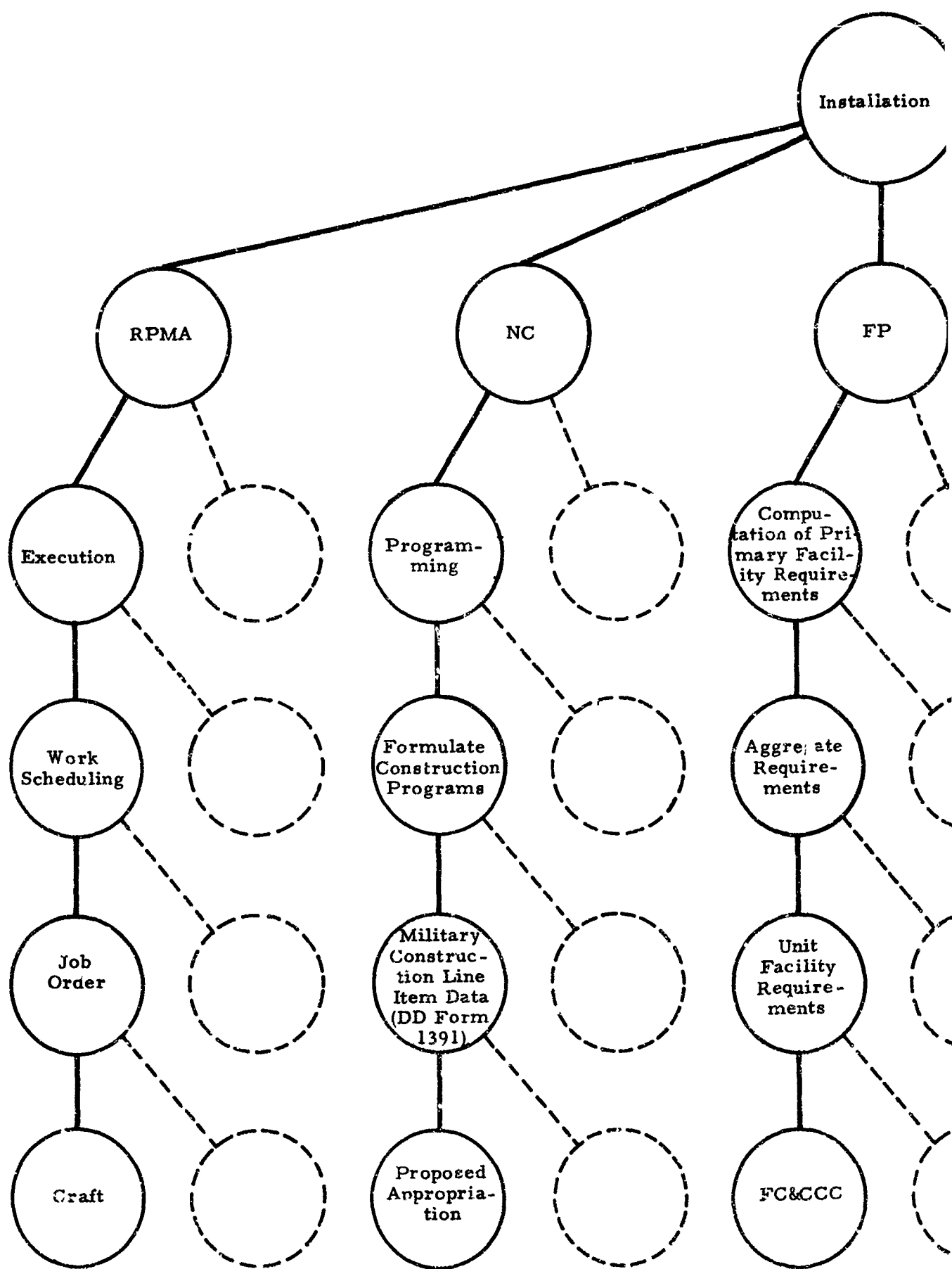
a. Installation

The installation is the echelon at which facilities are located, programs are executed, most requirements are determined and expressed in terms of facilities, and work is performed.¹ The installation is the major source of data flowing up the chain of command and has the greatest impact on the IFS data base. Since the work at the installation level is performed daily, query and/or update demands require this echelon to access (update and retrieve from) the IFS data base daily.

The RPMA management area consists of the planning, programming, budgeting, work execution, and performance evaluation of facilities engineering activities pertaining to the operation of utilities, maintenance of real property, minor construction and other engineering support, regardless of the funding program.

The planning function consists of the early systematic generation and projection of RPMA requirements unconstrained by budget and manpower limitations. The programming function consists of the installation

¹ Requirements determination for major functional facilities is a responsibility of the MAFC.



A

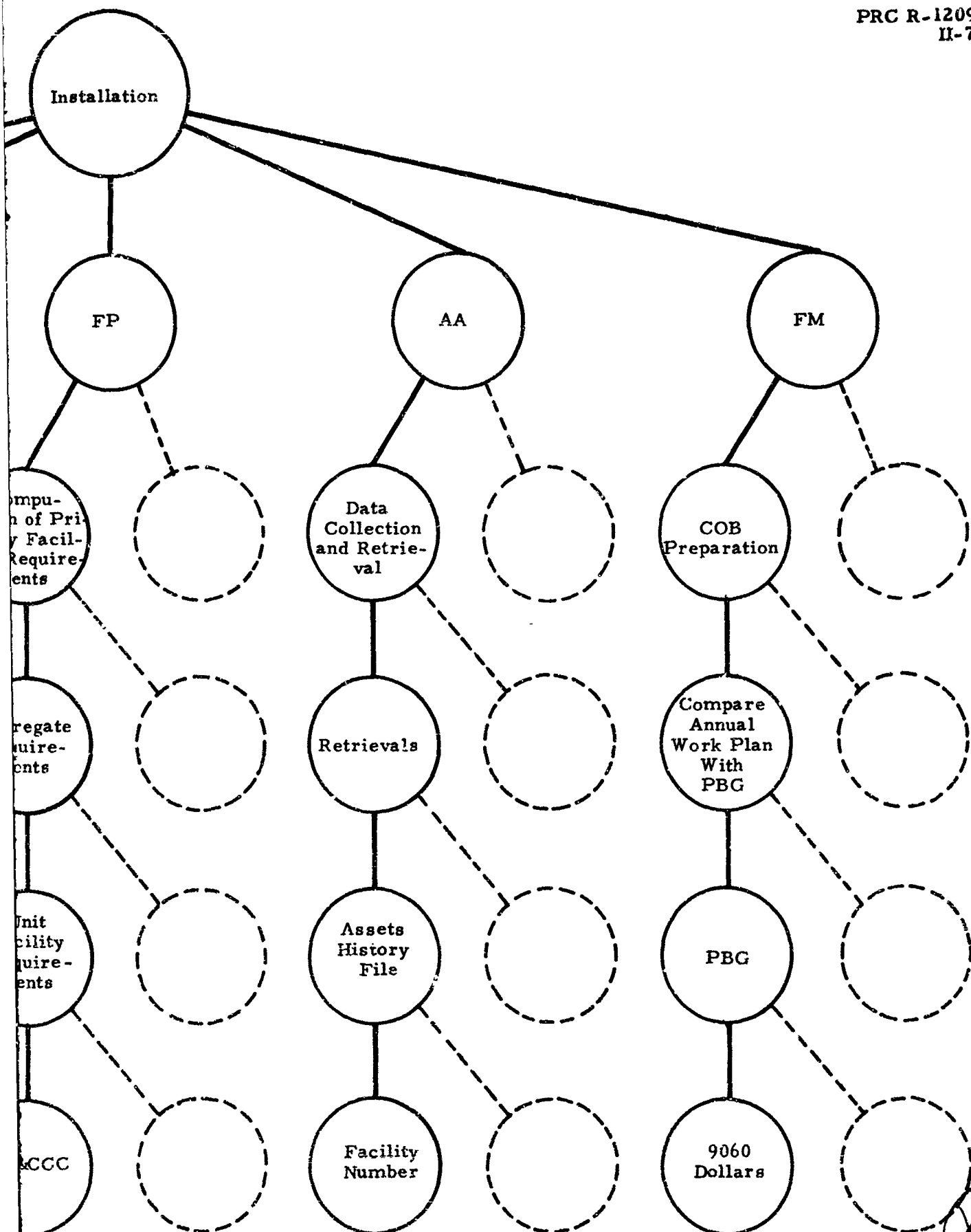


EXHIBIT II-2 EXAMPLE OF INSTAL-
LATION STRUCTURE

developing the information required to identify the funds needed to support RPMA for the budget year. Budgeting consists of the estimated costs, obligations, and expenditures required for RPMA activities. Execution consists of those post engineering activities that are conducted by the installation within the constraints of dollar controls established. Performance evaluation at the installation level permits comparison between actual performance and expected performance, which will differ because of changes in circumstances, missions, budget guidance, and uncertainties in estimates.

The RPMA management area at the installation level is unique in that data base updates and/or outputs are required to facilitate work management in areas such as work scheduling. The primary users of the RPMA management area at the installation level are the Post Engineer and his personnel. The interface modes between the RPMA management area and others will be the same as between the other management areas; that is, the interface will be via hardcopy reports (minimal) and/or the IFS data base.

The Assets Accounting management area, which provides the facilities assets data (categorized as facility inventory, condition, and utilization data) necessary to support the Facilities Management activities, is closely associated with the IFS data base in that the data base will for the most part contain assets data; the entering and retrieving of these data will be performed within the Assets Accounting management area. The installation is the major source of assets data; therefore, the majority of assets data collection and updating will take place at the installation level.

Output of this management area at the installation level will be primarily for the purpose of satisfying installation management requirements and complying with reporting requirements of higher echelons on a monthly or as- required basis. Most assets data collected at the installation level will be used by all higher echelons in the performance of their management duties. The primary contributors of assets data will be the installation's Deputy Chief of Staff for Logistics (DCSLOG) and Post Engineer organization.

Assets data will be used by the other management areas in the performance of their functions and operations. The Assets Accounting management area, at the installation level, will interface with the New Construction and RPMA management areas through hardcopy reports (minimal) produced via the IFS data base by Assets Accounting. At the installation level, the Assets Accounting management area consists of one function--data collection and retrieval--that provides selected users at the installation level the required reports, intermediate files, and the data necessary for special queries by effecting recording, retrieval, and data conversion.

The Facility Planning management area provides for the acceptance of user-specified facility requirements generators (units, functional activity workloads), determination of facility requirements, assessment of facility assets, economic tradeoff analysis, determination of resource requirements, and determination of facility utilization and readiness. This management area will provide information on available capacities, requirements, availability of a type of facility, and installation facility readiness. This information will be used primarily by the post engineer, DCSLOG, Deputy Chief of Staff for Personnel (DCSPER), and Deputy Chief of Staff for Operations (DCSOPS) on an as-required basis. The Facility Planning management area, at the installation level, will interface with the other three management areas (i.e., Assets Accounting, New Construction, and RPMA) via the IFS data base. In addition, it will interface with New Construction and RPMA via hardcopy reports (minimal).

At the installation level, the Facility Planning management area includes seven functions:

- (1) Selection and modification of unit input data
- (2) Computation of unit primary facility requirements
- (3) Selection and modification of functional (non-unit) activity input data
- (4) Computation of functional (non-unit) activity facility requirements
- (5) Selection and ordering of facility requirements

- (6) Assessment of installation facility assets and computation of resources impacts
- (7) Generation of assessment and impact reports

Function (1) accepts user-specified TOE or TDA units and modifies personnel and/or equipment data as desired by the user. Function (2) processes TOE/TDA unit data with IFS facility allowance files to compute primary facility requirements for each individual unit. Function (3) accepts user-specified workload data (i.e., training, transients, logistics) and modifies the data as desired by the user. Function (4) produces non-unit facility requirements. Function (5) selects, sorts, and consolidates facility requirements data. Function (6) computes facility requirements for selected secondary facility categories and computes installation facility deficits, surpluses, and resource needs. Function (7) generates user-selected reports on the above.

The Facility Planning management area will generally not, at the installation level, interface with automated systems external to IFS.

The New Construction management area supports the New Construction management activities at the installation level and higher commands. In addition, it provides New Construction information, including land acquisition and consideration of pertinent funding programs, as required, to properly support the functional applications of the other IFS management areas. At the installation level, the New Construction management area will utilize information concerning planned and programmed construction projects. The installation is the major source for the generation of construction projects. The outputs from this management area will consist of execution, programming, and planning status reports. The majority of the status information will originate and be compiled at superior echelons and will be transmitted to the installation level via hardcopy reports and/or the IFS data base. The primary users of the New Construction management area will be the Installation G4, the Post Engineer, and the planning board. The New Construction management area, at the installation level, will interface with the Assets Accounting, RPMA, and Facility Planning management areas via the IFS data base.

At the installation level, the New Construction management area consists of five functions: planning, programming, execution, performance evaluation, and information control. Planning consists of the identification and specification of characteristics of facilities necessary to satisfy projected force level and mission support requirements. Programming consists of the orderly development of the Army construction requirements base in a manner consistent with the priorities inherent in force level and mission support requirements, policy guidance of higher echelons, and balanced installation development, which results in the grouping of these construction requirements into yearly increments consistent with projected availability of funds. Execution consists of those construction activities that are conducted by the installation. These activities are restricted by types of funding and dollar value ceilings. Performance evaluation at the installation level is restricted to monitoring project construction progress for those facilities for which the installation has execution authority. Information control provides for information storage, retrieval, display, and transmission capabilities to support the other functions of the New Construction management area. Increased visibility, improved control, and a reduction in the documentation effort in the New Construction management area are provided by the information control function.

b. Major Subordinate Command

This echelon is immediately superior to the installation and is primarily associated with review of installation information and dissemination of guidance to the installation. This echelon inputs a relatively small quantity of data into the system; its major effect on the data submitted from the installation is validation and summarization.

The RPMA management area at the MSC echelon is characterized by summarization and analysis of data submitted from the installation, and the development and dissemination of guidance data to the installation. This echelon will actively engage in the management of facilities at its installations.

Reports generated at this level will include the summarization (consolidation) of the five reports to be utilized for RPMA functional management. These management reports are associated with the five functions of RPMA (planning, programming, budgeting, execution, and performance evaluation).

The Assets Accounting management area at this echelon will address the review, correction, and consolidation of installation data. Consequently, this echelon's input of assets data will be minimal. Outputs of this management area will address the inventory, utilization, and condition of facilities at the installations within the MSC on an as-required and quarterly basis. The Assets Accounting management area, at the MSC echelon, will interface with the New Construction management area via hardcopy reports (minimal) and the IFS data base and will interface with the Facility Planning management area via the IFS data base. At the MSC echelon, the Assets Accounting management area will consist of one function--validation and retrieval--that will provide selected users at the MSC echelon the required reports, intermediate files, and the data necessary for special queries.

The Facility Planning management area at this echelon will provide outputs that will be utilized by DCSLOG, DCSOPS, and DCSPER for answering Facility Planning questions and projecting facility requirements. The Facility Planning management area, at the MSC echelon, will interface with the other three management areas (i.e., Assets Accounting, New Construction, and RPMA) via the IFS data base. In addition, it will interface with New Construction and RPMA via hard-copy reports (minimal).

At the MSC echelon, the Facility Planning management area consists of eight functions:

- (1) Selection and modification of unit input data
- (2) Computation of unit primary facility requirements
- (3) Selection and modification of functional (non-unit) activity input data
- (4) Computation of functional (non-unit) activity facility requirements

- (5) Selection and ordering of facility requirements
- (6) Allocation of facility requirements to installations
- (7) Assessment of installation facility assets and computation of resource impacts
- (8) Generation of allocation, assessment, and impact reports

With the exception of function (6), which selects the most desirable installation, based upon user options, from those available for use in satisfying demands for facilities, these functions have been described under the installation echelon. Function (6) is bypassed by those requirements which are user-directed to specific installations.

At the MSC echelon, the Facility Planning management area may interface with automated force accounting systems external to IFS.

The New Construction management area at the MSC echelon will address planning, programming, and review of construction projects. The data requirements at this level are similar to those at the installation level. Output reports will be required to support evaluation of proposed construction programs, assignment of command priorities, and review of project status. The New Construction management area, at the MSC echelon, will interface with the Assets Accounting, RPMA, and Facility Planning management areas via the IFS data base.

At the MSC level, the New Construction management area consists of three functions: planning, programming, and information control. These functions have been previously described under the installation echelon.

c. Major Army Field Command

The major areas of interest of this echelon are analysis, evaluation, review, and approval of subordinate echelon projects and data; issuance of guidance to the MSC; and development of utilization decisions affecting subordinate echelons. The data input to the IFS at this level of command is minimal. Outputs are required to support these areas of interest in all management areas.

The flow of RPMA management area data at this echelon will be similar to that described for the MSC. This echelon addresses a spectrum that covers all installations and MSC's under the MAFC. The MAFC functions will be oriented to reviewing major subordinate command-level actions and providing supervision and policy guidance to the MSC's.

The Assets Accounting management area at this echelon will be used to support the other management areas much the same way that it supports the subordinate echelons. Inputs of assets data will be negligible at this level. Outputs will normally be produced quarterly but also on request. The Assets Accounting management area, at the MAFC echelon, will interface with the New Construction management area via hardcopy reports (minimal) and the IFS data base and will interface with the Facility Planning and RPMA management area via the IFS data base. At the MAFC echelon, the Assets Accounting management area consists of one function--data retrieval--that will provide selected users at the MAFC echelon the required reports, intermediate files, and data for special queries.

The Facility Planning management area at the MAFC echelon will respond to a variety of facility requirements questions and will provide capabilities for matching facility requirements to facility assets in consonance with user-specified constraints. Inputs associated with forces, functional activities, assets, RPMA, and construction will be utilized by this management area in the performance of its functions and operations. Outputs will cover facility requirements, alternative allocation (stationing) plans, gross RPMA and construction requirements, and facility readiness displays. The Facility Planning management area, at the MAFC echelon, will interface with the three other management areas (i.e., Assets Accounting, New Construction, and RPMA) via the IFS data base. In addition, it will interface with New Construction and RPMA via hardcopy reports (minimal).

At this echelon, the facility planning management area consists of eight functions:

- (1) Selection and modification of unit input data
- (2) Computation of unit primary facility requirements
- (3) Selection and modification of functional (non-unit) activity
- (4) Computation of functional (non-unit) activity facility requirements
- (5) Allocation of facility requirements to installations
- (6) Selection and ordering of facility requirements
- (7) Assessment of installation facility assets and computation of resource impacts
- (8) Generation of allocation, assessment, and impact reports

All these functions have been previously described under the installation echelon or the MSC echelon. At the MAFC, the Facility Planning management area will normally interface with systems external to the IFS. Included in these systems are command force accounting type system and The Army Authorized Document System (TAADS).

The New Construction management area at the MAFC echelon will support the analysis, review, and approval actions required to produce and maintain the status of its construction programs. The outputs required are similar to those of the MSC echelon. The New Construction management area at this echelon will interface with the Assets Accounting and RPMA management areas via the IFS data base. At the MAFC level, the New Construction management area consists of three functions: planning, programming, and information control. These functions have been previously described under the installation echelon.

d. Headquarters, Department of the Army

This level is the highest echelon at which the IFS will be developed. It will serve the needs of HQ DA and executive managers and will produce management and budgetary data that will flow up and down the chain of command. HQ DA will utilize the entire IFS in support of its facility management function.

The RPMA management area, which will support planning, programming, budgeting, execution, and performance evaluation of HQ DA, will produce recurring reports that support these activities and nonrecurring reports that support special needs. These reports will provide visibility of requirements and performance necessary to develop policies, standards, plans, programs, and budgets for installation management, and will support the monitoring and technical review of RPMA management execution. The RPMA Office, DCSLOG, is the primary source of planning, programming, and budgeting guidance for RPMA as well as the initial decision level and input point for information on decisions made at OSA and OSD levels having impact on the planning, programming, and budgeting of RPMA.

The Assets Accounting management area at this echelon will be varied and often specialized. The IFS will be able to produce required reports on a recurring basis as well as respond to special queries from higher echelons. The assets data will also be utilized to support the functions of other operational elements of the IFS. The Assets Accounting management area, at the HQ DA echelon, will interface with the New Construction management area via hardcopy reports (minimal) and the IFS data base, and will interface with the Facility Planning management area via the IFS data base. At this echelon, the Assets Accounting management area consists of one function--data retrieval--that has been previously described under the MAFC echelon and, therefore, will not be further described here. The Assets Accounting management area does not interface with any systems external to IFS.

The Facility Planning management area at the HQ DA echelon will respond to a variety of questions concerning facility requirements, allocation of facilities, RPMA and construction gross impact requirements, and readiness displays. These outputs will be produced on request rather than on a periodic basis. The Facility Planning management area, at the HQ DA echelon, will interface with the Assets Accounting, New Construction, and RPMA management area via the IFS data base. In addition, it will interface with New Construction and RPMA via hardcopy reports (minimal).

At this echelon, the Facility Planning management area consists of eight functions. These functions were previously described under the installation echelon and the MSC echelon and are quite similar to HQ DA; therefore, they will not be discussed here. At the HQ DA echelon, the Facility Planning management area will interface with systems external to the IFS. Included in these systems are TAADS and the Force Accounting System (FAS).

The New Construction management area at HQ DA will require data similar to those required for the MAFC echelon and associated with the status of projects. Reports related to project status will be produced monthly for dissemination to subordinate echelons. In addition, planning guidance and programs will be produced to support annual planning, programming, budgeting, monitoring execution, and performance evaluation at all echelons.

The function composing New Construction at HQ DA are those of the Army staff, as this is the segment of HQ DA that provides New Construction information and responds to the remainder of HQ DA (i.e., OSA). The Army staff, which is the primary source of planning, programming, and budgeting guidance with regard to New Construction, is the initial decision level and input point for information on major decisions made at the OSA and OSD levels regarding plans, programs, and budgets, as well as individual construction projects. The New Construction management area at the HQ DA echelon will interface with the Assets Accounting, Facility Planning, and RPMA management area via the IFS data base.

At the HQ DA level, the New Construction management area consists of six functions: planning, programming, budgeting, execution, performance evaluation, and information control.

The planning function provides for the preparation of New Construction target goals, the preparation of program guidance, and the review of installation master plans. The programming function is concerned with OCE project review, Construction Requirements Review Committee (CRRC) program review, Office of the Deputy Chief of Staff

for Logistics (OLCSLOG) review, Program Budget Advisory Committee (PBAC) review, and Chief of Staff briefings on the New Construction program as well as individual projects if necessary. The information control function at the Army staff level provides for data storage, retrieval, display, and transmission needed to supply data to, and record actions of, HQ DA. It also provides for closing the feedback loop between HQ DA and lower echelons. The budgeting function consists of the projection, obtainment, and allocation of funds by type of resource for the execution of construction projects in order to provide maximum benefit from available resources and adhere to the applicable policies of the legislative and executive branches of the government. The execution function is the process of bringing authorized and funded construction projects to fruition in a timely and efficient manner. The performance evaluation function consists of recording and reporting the physical and financial progress of construction projects and analyzing the disparities between projected and actual development. Information control provides for information storage, retrieval, display, and transmission capabilities to support the five previously defined management functions.

Exhibit II-3 depicts a recap of the functions described in this subsection by management area and echelon.

3. IFS Information Flow Between Echelons and Systems External to IFS

Exhibit II-4 depicts the internal and external interfaces of the IFS between echelons. Internal to the IFS, the data base is the central and primary interface between echelons as well as management areas. Hardcopy reports also constitute internal interfaces between echelons and management areas. The external system interfaces to the IFS include the following basic data types: FAS, TAADS, The Automated Army Budget System (TAABS), and Simulation and Gaming Methods for Analysis of Logistics (SIGMALOG).

C. Army Organizations Addressed by the IFS

The following is a discussion of the Army echelons and agencies that will be serviced by four of the five IFS management areas (i.e.,

Management Area	Assets Account- ing	Functions	Echelon			
			HQ DA	MAFC	MSC	Instal- lation
Facility Planning	Assets Account- ing	Data collection and retrieval				X
		Validation and retrieval			X	
		Data retrieval	X	X		
		Selection and modification of unit input data	X	X	X	X
		Computation of unit primary facility requirements	X	X	X	X
		Selection and modification of functional (non-unit) activity	X	X	X	X
		Computation of functional (non-unit) activity facility requirements	X	X	X	X
		Selection and ordering of facility requirements	X	X	X	X
		Allocation of facility requirements to installations	X	X	X	
		Assessment of installation facility assets and computation of resource impacts	X	X	X	X
		Generation of assets allocation, assessment, and impact reports	X	X	X	X
New Construction		Planning	X	X	X	X
		Programming	X	X	X	X
		Budgeting	X	X ^{2,3}	X ³	X ³
		Execution	X	X ^{2,3}	X ³	X ^{1,3}
		Performance evaluation	X	X ^{2,3}	X ³	X ^{1,3}
RPM		Information control	X	X	X	X
		Planning	X	X	X	X
		Programming	X	X	X	X
		Budgeting	X	X	X	X
		Execution	X	X	X	X
		Review	X	X	X	X

Notes: 1 MMCA Funded Projects Only
2 PEMA Funds Only
3 Nonappropriated Funds Only

EXHIBIT II-3 FUNCTIONS BY MANAGEMENT AREA AND ECHELON

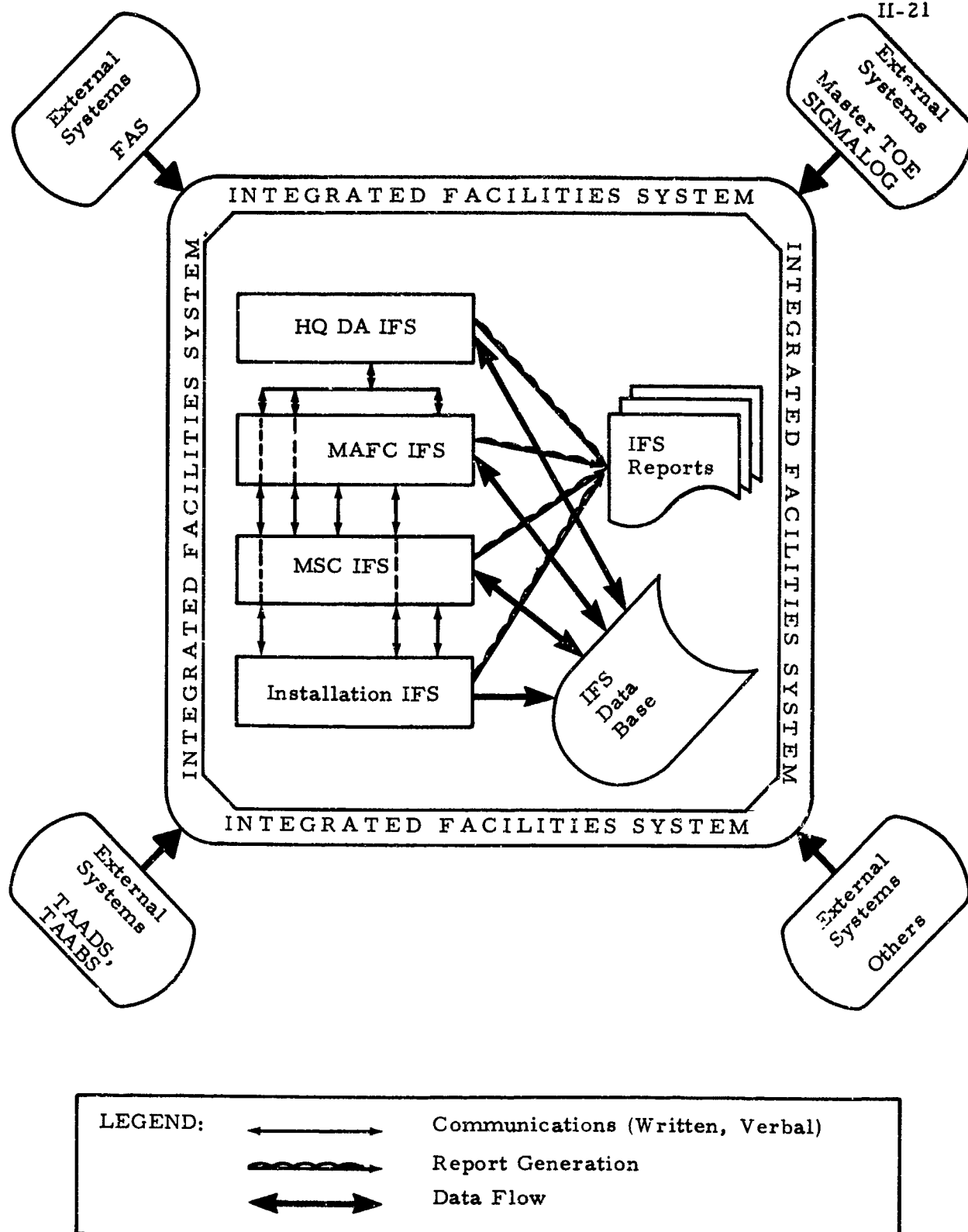


EXHIBIT II-4 IFS CONCEPTUAL ECHELON AND EXTERNAL SYSTEM INTERFACES

Assets Accounting, Facility Planning, RPMA, and New Construction). The Facilities Management area is not addressed as a separate entity, as it is supported by the other four management areas.

The Assets Accounting management area will collect assets data from all installations--approximately 3,000--that currently report under the inventory of military property. Therefore, Assets Accounting will address overseas as well as Continental United States (CONUS) installations.

The Facility Planning management area will have Army worldwide applicability, subject to the availability of appropriate facility allowance criteria and the completeness of facility assets, RPMA, and New Construction data in the IFS data base. The general-purpose nature of the Facility Planning functional design and its provisions for user options will facilitate its use for a variety of Facility Planning needs.

The RPMA management area will address Army RPMA requirements within CONUS, regardless of the funding source, at four echelons (i.e., HQ DA, MAFC, MSC, and installation). While the functions of RPMA (PPBER) will remain the same for developing RPMA requirements within CONUS, some variation in procedures will occur before the data are provided to HQ DA based on the funding sources and the organization of the MAFC.

The New Construction management area will address Army New Construction requirements worldwide, regardless of the funding source, at four echelons (i.e., HQ DA, MAFC, MSC, and installation). The scope of HQ DA will be worldwide.

D. Objectives of the IFS

This subsection describes IFS objectives related to categories of information in terms of the most important (critical) reports, queries, and benefits to be achieved by each management area.

The Assets Accounting management area will provide the facility assets data--categorized as facility inventory, condition, and utilization data--necessary to support the facilities management realm of IFS; it is concerned with facility category code identifiers and definitions,

C groups of similar facilities, measures of facility capacity for utilization, reporting criteria for multiuse buildings, facility occupancy (including family housing) and utilization, data collection and conversion, and data element requirements. In addition, this management area fulfills the requirements for facility assets data reporting that are not directly associated with other management areas, including OSD, the General Services Administration (GSA), and congressional requirements.

The Assets Accounting management area has one major objective concerning the actual content of the majority of the IFS data base, i.e., the facility inventory, utilization, and condition data. Assets Accounting is responsible for specifying the requirements for this portion of the data base as well as designing procedures for entering and retrieving the data.

The Facility Planning management area performs four broad tasks: accepting user-specified forces and functional activity facility requirement generators, determining selected facility requirements, analyzing facility assets in terms of requirements, and developing facility-related program requirements. In the performance of these tasks, Facility Planning operations are closely related to many of the operations of the other management areas. Facility planning relies on input from Assets Accounting, so that current holdings can be compared with a statement of facilities required as a function either of unit or non-unit workload inputs, or both. A net difference in facility requirements versus assets is analyzed with respect to economic impacts. Cost data are received from the New Construction management area and from the RPMA management area for existing facilities. The facility needs of specified units and functional activities are then identified in terms of New Construction and RPMA needs.

The basic objectives of Facility Planning are summarized as follows:

- To assess the adequacy of the present facility programs in meeting the present facility requirements
- To determine the impact of specified changes in Army force lists and/or functional activities on facility assets and requirements

- To determine the impact of policy options on facility assets and requirements
- To identify opportunities for more efficient utilization of facility resources in consonance with operational requirements

The New Construction management area's primary concern is that of providing a continuous stream of up-to-date information on permanent, contingent, and special-mission New Construction with a worldwide scope. This New Construction information is initiated during the planning activity and is added to and/or modified through the programming, budgeting, and execution (including project performance evaluation) activities. At the time of "beneficial occupancy," the facility becomes an Army asset, and information is accumulated by the Assets Accounting management area. The New Construction management area provides status, physical, and funding information on assets planned for, programmed for, or under construction prior to beneficial occupancy. The New Construction management area is an information source, via the IFS data base, for the Assets Accounting, Facility Planning, and Facility Management areas.

The New Construction management area has as its objectives the compilation of short-, intermediate-, and long-range military construction programs at HQ DA or at appropriate subordinate echelons; the assembly of all relevant information for military construction programs into the IFS data base; the update of the military construction program data in the data base, as required, without repetitive submission of unchanged data; the rapid retrieval of other selected information, as desired; the purification of data reporting, the simplification of data reporting; and the elimination of unnecessary data duplication.

The RPMA area's primary concern is to provide for improved management of RPMA. The RPMA design will provide the data necessary to display RPMA requirements and deficiencies relatable to support of forces, missions, and protection of investment.

The RPMA area has the following objectives:

- To provide the capability to state RPMA requirements during the planning phase
- To improve the correlation between the source of RPMA funds and missions/programs supported by these funds
- To improve the visibility of the technical and financial aspects of RPMA management
- To improve the current reporting system by providing the capability to rapidly produce structured backup data in answer to questions concerning RPMA

This RPMA functional management system will provide details as required in a timely manner at any stage of the planning, programming, budgeting, execution, or performance evaluation processes.

III. RPMA MANAGEMENT AREA OVERVIEW

This section provides an overview of the real property maintenance activities (RPMA) management area. Based upon the previous RPMA analysis effort,¹ the RPMA functional design objectives are identified along with other design considerations. Basic report formats are presented for the five new functional reports. Flow charts of both the present and the proposed RPMA systems are presented for each applicable management functional area [Planning, Programming, Budgeting, Execution, and Review (PPBER)] showing the relationships of actions from installation through major subordinate command (MSC) and major Army field command (MAFC) to Headquarters, Department of the Army (HQ DA).

The section concludes with a presentation of the functional design accomplishments and the actions required to implement the design.

A. Objectives of RPMA Management

1. Design Objectives

The specific objectives of the functional design of the Integrated Facilities System (IFS) RPMA management area are to overcome the system deficiencies identified during system analysis. Restating the deficiencies identified in the RPMA analysis document² as positive statements, the design objectives are as follows:

- Provide statement of RPMA requirements during the planning phase of the PPBER cycle
- Provide correlation between technical, financial, and real property accounting reports
- Provide visibility of technical and financial aspects of RPMA management

¹Planning Research Corporation, PRC R-1209, Vol. II, Part 2, RPMA Module Analysis for the Integrated Facilities System, December 1969.

²Ibid.

- Produce structured information rapidly to answer questions concerning RPMA

The design of an improved system for management of RPMA rests on two fundamental concepts:

- RPMA requirements are generated at the installation level, processed through the chain of command, and reported to HQ DA early enough in the PPBER cycle to influence preparation of the Defense Guidance Memorandum, which addresses logistics guidance, including RPMA.
- Two separate but supporting channels are used for management of RPMA, the financial management channel and a strengthened functional management channel.

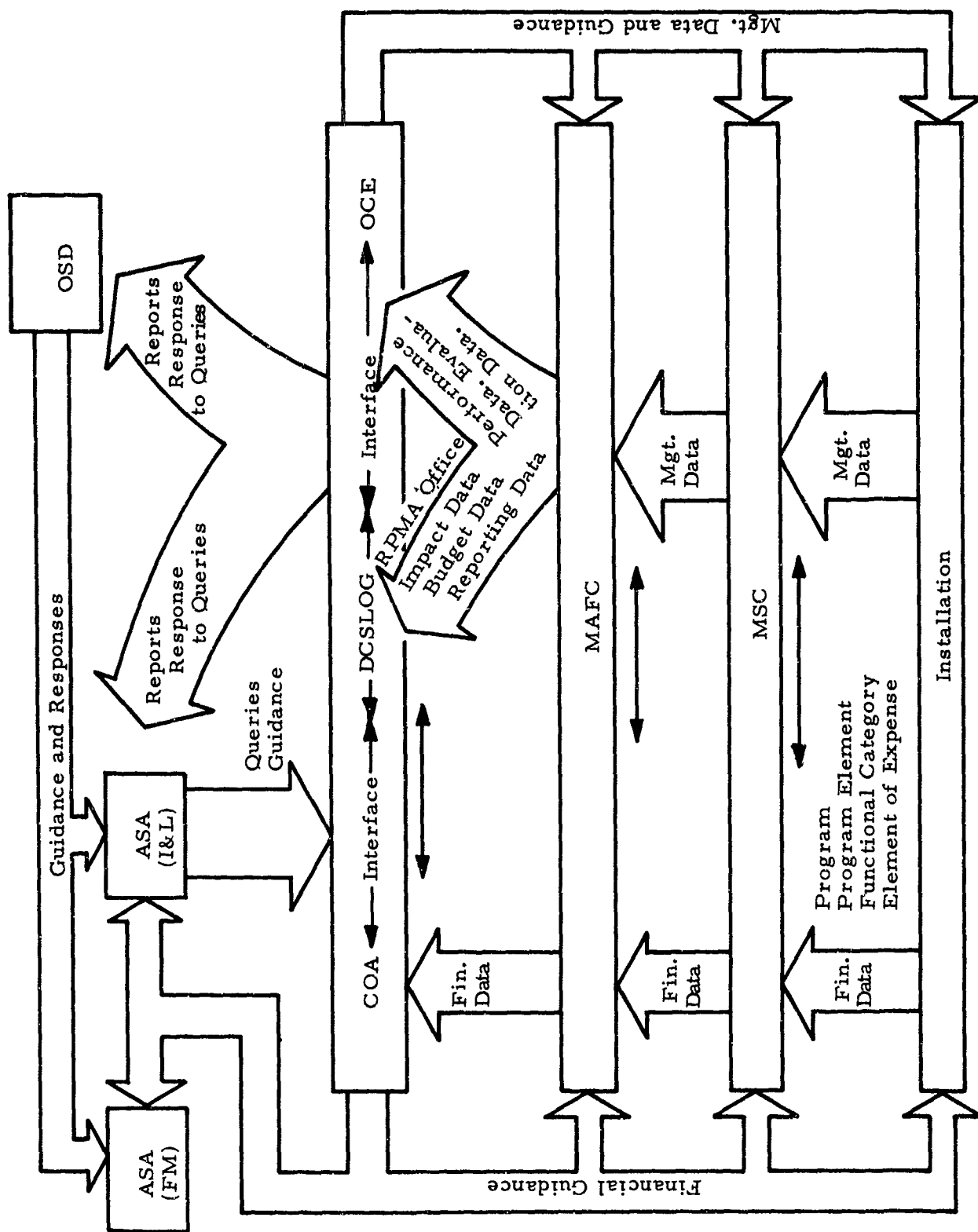
2. Other Design Considerations

a. General Design Outline

The broad outlines of the proposed RPMA system design are illustrated in Exhibit III-1. Guidance from HQ DA, some of which originates in the Office of the Secretary of Defense (OSD), is sent to each level of command: MAFC, MSC, and installation. Data are generated and returned in the form of budgets or reports through either the financial management channel or a strengthened functional management channel, or both. Many technical data from the present financial management channel are eliminated and carried in the strengthened functional management channel. A procedure is presented for generating RPMA support data for use as requirements and impact data in the planning, programming, and budgeting processes, and for use as performance data in the execution and review processes.

b. Functional Management

Five new reports, which replace or supplement current functional management plans and reports, provide the data that flow in the functional management channel.



PRC R-1209
III-3

EXHIBIT III-1 OUTLINE OF RPMA SYSTEM DESIGN

These functional management reports support various phases of the PPBER cycle. Each report addresses the four RPMA functional categories: (1) operation of utilities, (2) maintenance of real property, (3) minor construction, and (4) other engineering support. And each report is used by both facility users and facility maintainers at each echelon from installation to HQ DA. The summary section of each report, in addition to reducing the voluminous detailed data to totals and compilations, presents several basic indicator relationships as the prime management tools for higher echelon managers in making facility-related decisions in the RPMA management area.

c. Financial Management

The financial management channel uses budget and financial guidance documents to identify RPMA financial requirements by Five-Year Defense Program (FYDP) programs and program elements, as well as by appropriation or fund source. The financial data requirements are summarized by the four functional categories,¹ thus removing from the financial channel the great amount of RPMA detail it now carries, yet retaining the functional category identification in both financial and functional management channels. The removal of the RPMA detail data from the financial management channel is considered essential in restructuring RPMA data for use in the functional management channel. As stated in Volume II, Part 2,² discussions with comptroller personnel at all echelons indicate general agreement that this degree of RPMA detail is not required for financial reporting and management. Further discussions were held with Comptroller personnel during the preparation of this report and again there was general agreement on the concept set forth in the RPMA design.

¹ Functional categories: 9-operation of utilities; 10-maintenance of real property; 11-minor construction; 12-other engineering support.

² RPMA Module Analysis for the Integrated Facilities System, December, 1969

The removal of RPMA detail data from the financial management channel raises several basic questions. The first of these is that of how RPMA data is to be maintained at the installation. The IFS design visualizes adequate ADP support for the post engineer for his use in storing raw data and manipulating that data for reporting purposes whether it be through the financial management channel or functional engineer management channel. The configuration of the ADP support to be provided to the post engineer will be determined by Computer Systems Command at a later date. It does appear clear, however, that the RPMA detail data will no longer reside in the finance and accounting office portion of the data base. The current trend in the Army to bring all automation under a Management Information Systems Division or similar arrangement at the installation level should provide both the post engineer and the finance and accounting office (F&AO) with the support they need. The question of who will maintain RPMA detail data cannot be answered definitively, because a decision by Computer Systems Command to provide dedicated support to the IFS, for example, could result in ADP support being provided from a source other than the installation data base. Regardless of where the ADP support for the IFS is located, the system design concept for RPMA utilizes the IFS data base for RPMA management and the movement of associated data.

Within the present context of RPMA reporting and the storing of RPMA data the questions may arise as to whether the post engineer in maintaining RPMA detail data is in fact accomplishing formal cost accounting. The answer to this and other questions can be derived from AR 37-108, which sets forth the general accounting and reporting procedures for finance and accounting offices. AR 37-108 states that a double-entry accounting system including a general ledger and subsidiary records and books of original entry will be maintained by the finance and accounting office. The regulation goes on to list typical general ledger accounts, all of a nature much broader than RPMA. AR 37-108 further states that detail cost data classified in accordance with the uniform chart of general ledger accounts will be controlled through the general ledger by the basic elements of cost, namely labor, consumable supplies, contractual and other services, and capital equipment.

In reviewing AR 37-108 from a purely technical viewpoint, however, it is possible to quote from the regulation and to indicate some conflict with the post engineer maintaining detail data. For example, paragraph 9-51 states that "the finance and accounting officer is responsible for establishing and maintaining the cost accounting system in accordance with established principles and procedures including the maintenance of cost accounting records." A further quotation from paragraph 9-41 pertaining to additional detail accounts states that "the account structure to be utilized with these instructions must be consistent with the Army management structure prescribed in the AR 37-100 series and may include accounts in more detail". Using these two quotations, an argument may be made that on the basis of AR 37-100-71 and the detailed RPMA accounts contained therein, the post engineer should not maintain this detail data.

It is important to remember, however, how these detail accounts got into AR 37-100-71. They were not put in by financial management requirements, as AR 37-108 clearly indicates, but by functional engineer managers in an attempt to develop engineer data. This use of the financial management channel by engineer managers was discussed in Volume II, Part 2. Comptroller personnel have stated repeatedly that this amount of detail is not required. It is interesting to quote further from paragraph 9-41, AR 37-108, which reinforces this viewpoint. It states, "All such additional detail accounts must be kept to a minimum consistent with management needs inasmuch as a multiplicity of accounts increases the accounting workload and frequently only results in less meaningful data."

The implementation of the IFS and the maintenance of RPMA detail data by the post engineer will require the revision of AR 37-100-XX to eliminate RPMA detail data and remove the connotation that the post engineer is doing formal cost accounting. RPMA detail data should be considered RPMA management data. As this regulation is published annually, necessary coordination should be accomplished with the Comptroller of the Army to remove all RPMA detail data from this document, leaving only the four functional categories of RPMA and the appropriate elements of expense associated with those functional categories.

In addition to AR 37-100-XX, a review of other financial regulations containing references to RPMA detail accounts should be made to determine

the validity of retaining the references in present regulations. For example, paragraph 7-14 (f) of DA Pamphlet 37-6, "Accounting and Reporting Procedures Manual for Project Prime under Resource Management Systems" is a direct quote of paragraph 9-63 (e) of AR 37-108. In view of the changes proposed with the introduction of the IFS and the capability of the post engineer to maintain detailed management data, some revision of financial regulations may be desirable.

The elimination of RPMA detail data from financial management reports and finance and accounting records has been basic to the RPMA design. This assumption, first set forth in Volume II, Part 2, visualizes the financial management channel receiving RPMA data for reporting purposes in summarized form by functional category and element of expense. Exhibit IV-7, Volume II, Part 2, sets forth this concept for providing summarized data to the financial management channel as well as inputs to the reports in the functional engineer management channel. As can be seen from the exhibit, both the financial and functional management systems are vertical in nature, extending visibility of installation activities and requirements up through the echelons to HQ DA.

Section V of this report discusses in more detail the necessity for developing an automated horizontal system at installation level that can provide inputs to the vertical RPMA system design. This horizontal system should include but not be limited to work management in providing an interface with the vertical financial and functional channels.

Another basic question that could arise is, "how will the financial management channel obtain the RPMA summarized data and element of expense breakdown required for financial reporting?" The specifics of this, of course, must be addressed in the development of the horizontal installation information system. However, visits to installations have provided considerable insight into this area, and the discussion which follows may prove helpful when developing the installation system.

The 12 most common elements of expense used by the Post Engineer, which would be provided to the comptroller/F&AO with RPMA functional category data are:

110	Personnel compensation (direct hire U. S.)
120	Personnel benefits (direct hire U. S.)

210	Travel and transportation
219	All other travel
220	Transportation of things
251	Purchased services
252	Purchased equipment maintenance
261	Supplies (Except POL)
264	Other POL
277	Funded equipment rental
311	Capital Equipment (investment items)
312	Capital equipment (expense items)

As can be seen from this list, the post engineer is concerned primarily with providing data related to basic elements of cost for labor, consumable supplies, contractual and other services, equipment rental and capital equipment. An automated installation information system should have the capability to store and produce data related to these elements of expense for use by the comptroller/F&AO. Data can be developed for input to the computer for contract services, equipment rental and capital equipment by using billing data for contract services, internal reporting (trip ticket information) for equipment rental, and equipment transactions for the acquisition of post engineer equipment. Labor and supplies are not so clear-cut, as these involve other systems. For example, post engineer personnel are paid on the basis of the submission of DA Form 976, Time and Attendance Report, and not from the hours recorded against job orders. It is visualized that the work management system that is developed as part of an installation information system will record labor expended against a facility by number, by employee name and by job order. By the use of an employee master file contained in the automated system these labor charges can then be accumulated by employee, by job orders and by building number. This capability could lead to the elimination of the Time and Attendance Report with updates of labor data provided to the comptroller/F&AO on a scheduled basis. If the present system of time cards remains, an output by the post engineer to the comptroller/F&AO on a bi-weekly basis can provide labor data from the installation information system that would be useful for checking the data contained on the time cards. It is believed that the installation information system should provide post engineer labor data to the comptroller/F&AO with little difficulty. The specific inputs to the system and to the comptroller/F&AO of frequency and format must be developed with the system.

The remaining element of expense, supplies, may be provided to the comptroller/F&AO by someone other than the post engineer. Many installations have automated supply systems from which post engineer personnel draw necessary supplies. Totals of supplies drawn are provided by the supply organization to the comptroller/F&AO on a scheduled basis. The post engineer can enter into the work management portion of the installation information system, on the basis of supplies drawn, supply data against job orders, and buildings. A supplemental report by the post engineer to the comptroller/F&AO, listing in summary form the supplies drawn, can provide a useful check against supply data furnished by the supply organization.

The interface between the comptroller and the functional engineer management channel at MSC, MAFC and DA levels should be mutually supporting with the functional management channel providing detailed RPMA data to the comptroller on an as-required basis. Summarized RPMA data carried in financial reports would be provided by the post engineer. Therefore, no discrepancy should exist between the totals carried in both management channels. Coordinating procedures should be developed at all echelons to ensure compatibility of all RPMA data carried.

d. Reporting System

One of the major modifications in the proposed RPMA system design is in the area of reporting. As stated previously, five new reports are substitutions or modifications of current functional management plans and reports. The relationships of these five reports to time of preparation and to the financial reports are shown in the following table:

<u>Functional Report</u>	<u>Acronym</u>	<u>Installation Preparation</u>	<u>Related Financial Document</u>
Unconstrained Requirements Report	URR	March	-
Financed, Unfinanced Requirements Report	FURR	February	Command Operating Budget (COB)
Summary Annual Work Plan	SAWP	June-July	Approved Operating Budget (AOB)
Midyear Review Report	MYRR	October	Budget Execution Review (BER)

<u>Functional Report</u>	<u>Acronym</u>	<u>Installation Preparation</u>	<u>Related Financial Document</u>
Prior-Year Performance Report	PYPR	July-August	Prior-Year Report (PYR)

The reports are designed to have a compatibility of data so that RPMA information accumulated in the PPBER cycle will have better continuity, visibility, and credibility.

In the following discussion, the structure of the five reports is presented, first, by identifying the basic report format by sections and, second, by showing the recommended composition of the report to be submitted by each command echelon. Examples of the basic formats for the five reports are shown in Exhibit III-2 (a through e).

e. Basic Report Format

To enhance information continuity, the RPMA data of the respective functional reports are grouped into six basic sections: consolidation sheet, summary sheet, detail sheet, facility component sheet, equipment list, and project list. These separate sections permit selective aggregation and presentation of data to meet the needs of the various reports. A brief description of each of the basic sections follows.

(1) Consolidation Sheet (Exhibits 2a, d, f, i, and k)

RPMA data are aggregated to the highest RPMA category for the reporting command echelon (i.e., FC 9 - operation of utilities, FC 10 - maintenance of real property, etc.).

(2) Summary Sheet (Exhibits 2b, e, g, j and l)

RPMA data are displayed for each RPMA category to the next lower subdivision beneath the category level (i.e., operation of utilities is subdivided into water service, sewage service, etc.).

(3) Detailed Sheet (Exhibits 2c, h, and m)

RPMA data are displayed below the subdivision level to provide the visibility of meaningful sub-subdivision categories (i.e., water service is subdivided into purchased water, filtered water, and unfiltered water).

(4) Facility Component Backup Sheet
(Exhibit 2n)

RPMA cost data for FC 10 - maintenance of real property - are developed to the building/structure component level (i.e., floors, roofs, etc.).

(5) Equipment List (Exhibit 2o)

Engineer mobile equipment that is associated with work project activities is listed by appropriate descriptive and cost identifiers.

(6) Project List (Exhibit 2o)

Specific projects to accomplish post engineer activities/missions are listed by appropriate descriptive and cost identifiers.

The composition of each of the functional reports is achieved by varying the combination of the above basic data sections to meet the particular purpose of each report.

f. Report Composition by Command Echelon

Each command echelon prepares its RPMA reports in two presentations, (1) by program element, and (2) by command echelon totals. Installation reports are broken out by program element and totaled by installation; MSC reports are also broken out by program element and totaled for the entire MSC; MAFC reports are again broken out by program element and aggregated for the entire MAFC.

The composition of each report varies both with the purpose of the report and the command echelon making the report. Each command echelon consolidates, revises, and forwards to the next higher echelon only that information needed by the next higher echelon to manage the program. In order to provide higher echelons with visibility of installation activities, intermediate echelons forward appropriate sections of installation level reports to higher headquarters.

The control chart, Exhibit III-3, shows a proposed report composition for each command echelon for each report. The chart also provides a suggested distribution of the various report sections between HQ DA

(Text continues on p. III-75.)

EXHIBIT III-2a RPMA REPORT FORMAT, URR CONSOLIDATION

INSTALLATION
MAJOR SUBORDINATE COMMAND
MAJOR ARMY FIELD COMMAND
PROGRAM ELEMENT
FUND SOURCE (ABNS)

COST				\$ BY PRIORITY				\$ BY CONDITION				OUT YEAR \$ REQUIREMENTS			
SON TRACT	LABOR	MATL & SPLY	EQUIP MENT	TOTAL	P1	P2	P3	N\$	Δ\$ C1	Δ\$ C2	Δ\$ C3	Δ\$ C4	FY	FY	FY
	MIL	CIV													

FC 9 - OPERATION OF UTILITIES
FC 10 - MAINTENANCE OF REAL PROPERTY
FC 11 - PINE CONSTRUCTION
FC 12 - OTHER ENGINEERING SUPPORT
GRAND TOTAL

RPMA WORK FORCE		ON HAND	PROJECTED
PERSONNEL	ADTH TOA		ROMI
MILITARY OFFICER			
EM			
CIVILIAN			
TOTAL			

BASE DATA		ACTUAL	PROJECTED
POPULATION SERVED			
RESIDENT			
NON-RESIDENT			
EFFECTIVE (RES + 1/2 NON RES)			
COVERED AREA		ACTUAL	PROJECTED
ACTIVE			
INACTIVE			
TOTAL			

PLANNED PERFORMANCE		\$ PER CAPITA	\$ PER SQ FT	% FC 10
FC 9				
FC 10				
FC 11				
FC 12				

INSTALLATION _____
 MAJOR SUBORDINATE COMMAND _____
 MAJOR ARMY FIELD COMMAND _____
 PROGRAM ELEMENT _____
 FUND SOURCE (AMS) _____

FC 9 - OPERATION OF UTILITIES - TOTAL

WATER SERVICE
 SEWAGE SERVICE
 ELECTRICAL SERVICE
 COOLING SERVICE
 HEATING SERVICE
 OTHER UTILITY OPERATIONS
 INACTIVE

U/M	PERFORMANCE TARGETS				COST						SALES		PRI ORITY	
	QTY	\$	UNIT COST	PER CAPITA USAGE		CON TRACT	LABOR		MATL & SPLY	EQUIP MENT	TOTAL	QTY		\$
				QTY	\$		MIL	CIV						
A GALS														
K CALS														
A KWH														
TONS														
MIL BTU														
NONE														
NONE														

FC 10 - MAINTENANCE OF REAL PROPERTY - TOTAL

BUILDINGS
 SURFACE IMPROVEMENTS
 GRCAOS
 UTILITIES
 INACTIVE

U/M	QTY	\$ COST						\$ BY PRIORITY			\$ BY COND			
		CONTRACT \$	LABOR		MATL & SPLY	EQUIP MENT	TOTAL	P1	P2	P3	N \$	Δ\$ C1	Δ\$ C2	
			MIL	CIV										
AL														
K SQ FT														
K SQ YDS														
NONE														
NONE														
NONE														

FC 11 - MINOR CONSTRUCTION - TOTAL

PROJECTS: \$0 - \$10,000
 PLANNED PROJECTS
 ESTIMATE OF UNPLANNED PROJECTS
 PROJECTS: \$10,000 - \$25,000
 PLANNED PROJECTS
 ESTIMATE OF UNPLANNED PROJECTS
 INACTIVE

NR OF PROJ ECTS	\$ COST						\$ BY PRIORITY			OUT YEAR \$ REQUIREMENTS			
	CONTRACT \$	LABOR		MATL & SPLY	EQUIP MENT	TOTAL	P1	P2	P3	FY__	FY__	FY__	FY__
		MIL	CIV										

ST			SALES		PRI- ORITY	OUT YEAR \$ REQUIREMENTS			
MATL & SPLY	EQUIP MENT	TOTAL	QTY	\$		FY___	FY___	FY___	FY___

REQUIREMENTS

REQUIREMENTS

REQUIREMENTS

\$ BY PRIORITY			\$ BY CONDITION					CONDITION QUANTITY					OUT YEAR \$ REQUIREMENTS			
P1	P2	P3	TOTAL	Δ \$ C1	Δ \$ C2	Δ \$ C3	Δ \$ C4	C1	C2	C3	C4	TOTAL	FY___	FY___	FY___	FY___

REQUIREMENTS

PRIORITY		OUT YEAR \$ REQUIREMENTS			
P2	P3	FY___	FY___	FY___	FY___

B

FC 12 - OTHER ENGINEERING SUPPORT - TOTAL
 FINE PREVENTION AND PROTECTION
 REFUSE HANDLING
 WASTE/CULY SERVICES
 CUSTODIAL SERVICES
 SNOW REMOVAL AND ICE ALLEVATION
 MANAGEMENT AND ENGINEERING
 MISCELLANEOUS ACTIVITIES
 INACTIVE

INSTALLATION _____
MAJOR SUBORDINATE COMMAND _____
MAJOR ARMY FIELD COMMAND _____
PROGRAM ELEMENT _____
FUND SOURCE (AMS) _____

FC 9 - OPERATION OF UTILITIES

WATER SERVICE - TOTAL
PURCHASED WATER
FILTERED WATER
UNFILTERED WATER

SEWAGE SERVICE - TOTAL
PURCHASED SEWAGE DISPOSAL
TREATED DOMESTIC SEWAGE
UNTREATED SEWAGE
INDUSTRIAL WASTES

ELECTRICAL SERVICE - TOTAL
PURCHASED ELECTRICAL ENERGY
GENERATED ELECTRICAL ENERGY

CCCLING SERVICE - TOTAL
AIR CONDITIONING PLANTS
REFRIGERATION PLANTS
COLD STORAGE PLANTS
ICE MANUFACTURING UNITS

```

HEATING SERVICE - TOTAL
MI PRES BOILER PLANTS OVER 3.5 MIL BTU CAPACITY
  GAS FIRED
  OIL FIRED
  COAL FIRED
HEATING PLANTS OVER 3.5 MIL BTU CAPACITY
  GAS FIRED
  OIL FIRED
  COAL FIRED
HEATING PLANTS 0.75 - 3.5 MIL BTU CAPACITY
  GAS FIRED
  OIL FIRED
  COAL FIRED
HEATING PLANTS UNDER 0.75 MIL BTU CAPACITY
  GAS FIRED
  OIL FIRED
  COAL FIRED
PURCHASED STEAM AND HOT WATER
COAL HANDLING

```

OTHER UTILITY OPERATIONS

INACTIVE

TOTAL FC 9

[illegible]

A

COST					SALES		PRI ORITY	OUT YEAR \$ REQUIREMENTS			
LABOR		MATERIAL & SUPPLY	EQUIP- MENT	TOTAL				FY	\$	FY	FY
MIL	CIV										

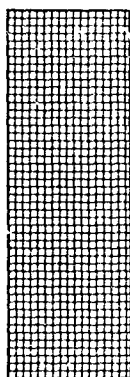
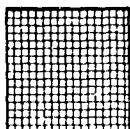
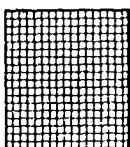


EXHIBIT III-2c RPMA REPORT FORMAT,
URR DETAIL

B

```

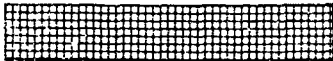
BUILDINGS - TOTAL
    PERMANENT - TOTAL
    TEMPORARY - TOTAL
TRUCK HOUSING
    PERMANENT
    TEMPORARY
FAMILY HOUSING
COMMUNITY
    PERMANENT
    TEMPORARY
OPERATIONAL
    PERMANENT
    TEMPORARY
TRAINING
    PERMANENT
    TEMPORARY
MAINTENANCE
    PERMANENT
    TEMPORARY
PRODUCTION
    PERMANENT
    TEMPORARY
ROUTE
    PERMANENT
    TEMPORARY
STORAGE
    PERMANENT
    TEMPORARY
MEDICAL
    PERMANENT
    TEMPORARY
ADMINISTRATIVE
    PERMANENT
    TEMPORARY
OTHER
    PERMANENT
    TEMPORARY
INACTIVE
    PERMANENT
    TEMPORARY

SURFACE IMPROVEMENTS
ROADS - TOTAL
    CONCRETE
    BITUMINOUS
    OTHER
AIRFIELD PAVEMENTS - TOTAL
    CONCRETE
    BITUMINOUS
    OTHER
PARKING, OPEN STORAGE & WALKS - TOTAL
    CONCRETE
    BITUMINOUS
    OTHER
RAILROADS
BRIDGES
WATERFRONT FACILITIES
WATERWAYS
%1.C. STRUCTURES
INACTIVE

```

[illegible]

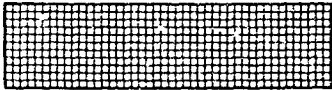
\$ COST					\$ BY PRIORITY			\$ BY CONDITION					CONDITION QUANTITY					OUT YEAR \$ REQUIREMENTS			
LABOR		MATL SPLY	EQUIP MENT	TOTAL	P1	P2	P3	N \$	Δ\$ C1	Δ\$ C2	Δ\$ C3	Δ\$ C4	C1	C2	C3	C4	TOTAL	FY__	FY__	FY__	FY__
MIL	CIV																				



B

A

\$ COST					\$ BY PRIORITY			\$ BY CONDITION					CONDITION QUANTITY					OUT YEAR \$ REQUIREMENTS			
LABOR		MAT'L & SPLY	EQUIP MENT	TOTAL	P1	P2	P3	N \$	Δ \$ C1	Δ \$ C2	Δ \$ C3	Δ \$ C4	C1	C2	C3	C4	TOTAL	FY__	FY__	FY__	FY__
MIL	CIV																				



B

PC 11 - MINOR CONSTRUCTION

PROJECTS: \$0 - \$10,000
PLANNED PROJECTS
ESTIMATE OF UNPLANNED PROJECTS

PROJECTS: \$10,000 - \$25,000
PLANNED PROJECTS
ESTIMATE OF UNPLANNED PROJECTS

INACTIVE

TOTAL PC 11

NR OF PROJ ECTS	\$ COST					\$ BY PRIORITY			OUT Y FY	
	CONTRACT \$	LABOR		MATL & SPLY	EQUIP MENT	TOTAL	P1	P2		P3
		MIL	CIV							

PC 12 - OTHER ENGINEERING SUPPORT

FIRE PREVENTION AND PROTECTION

REFUSE HANDLING
COLLECTION
DISPOS
LANDFILL
INCINERATION

ENTOMIOLOGY SERVICES

CUSTODIAL SERVICES

SMOKE REMOVAL AND AIR ALLEVATION

MANAGEMENT AND MAINTENANCE

MISCELLANEOUS ACTIVITIES
RENT FOR REAL PROPERTY
SPECIAL MAINTENANCE ACTIVITIES
PURCHASED LOCAL MAINTENANCE SERVICES
PURCHASE OF MGS EQUIPMENT (OVER \$100)
CPA & PTC OF MGS EQUIPMENT
MASTER PLANNING
OTHER

INACTIVE

TOTAL PC 12

U/M	QTY	\$ COST						\$ BY PRIORITY			
		CONTRACTS		LABOR		MATL & SPLY	EQUIP MENT	TOTAL	P1	P2	P3
		QTY	\$	MIL	CIV						

NR PERS

K CU YDS
K CU YDS
K CU YDS
K CU YDS

K SQ FT

K SQ FT

NONE

NONE

NONE

NONE

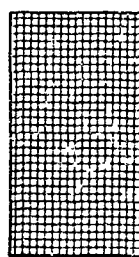
NONE

NONE

NONE

NONE

NONE



A

\$ BY PRIORITY				OUT YEAR \$ REQUIREMENTS			
TOTAL	P1	P2	P3	FY___	FY___	FY___	FY___

\$ BY PRIORITY					OUT YEAR \$ REQUIREMENTS			
SHIP NT	TOTAL	P1	P2	P3	FY___	FY___	FY___	FY___

B

INSTALLATION
MAJOR SUBORDINATE COMMAND
MAJOR ARMY FIELD COM. 'A', D
PROGRAM ELEMENT
FUND SOURCE (AMS)

										\$ COST			\$ BY PRIORITY			\$ BY CONDITION			
CONTRACT	LABOR		MATERIAL SUPPLY	EQUIPMENT	TOTAL	P1	P2	P3	N \$	Δ \$ C1	Δ \$ C2	Δ \$ C3	Δ \$ C4						
	MIL	CIV																	

TABLE 9 - CREATION OF UTILITIES - TOTAL FINANCIAL REQUIREMENT

FC 10 - MAINTENANCE OF REAL PROPERTY - TOTAL
FINANCED REQUIREMENT
UNFINANCED REQUIREMENT

FC 11 - MINOR CONSTRUCTION - TOTAL
FINANCED REQUIREMENT
UNFINANCED REQUIREMENT

FC 12 - LTWP ENGINEERING SUPPORT - TOTAL
FINANCED REQUIREMENT
UNFINANCED REQUIREMENT

GRAND TOTAL
FINANCED REQUIREMENT
UNFINANCED REQUIREMENT

RPMA WORK FORCE					BASE DATA			
PERSONNEL	AUTH TDA	ON HAND	FINANCED RQMT	UNFIN RQMT	POPULATION SERVED RESIDENT NON-RESIDENT EFFECTIVE (RES + 1/3 NON RES)	ACTUAL	FORECAST	
MILITARY OFFICER EM						K SQ FT		
CIVILIAN					COVERED AREA ACTIVE INACTIVE TOTAL	ACTUAL	FORECAST	
TOTAL								

INSTALLATION _____
MAJOR SUBORDINATE COMMAND _____
MAJOR ARMY FIELD COMMAND _____
PROGRAM ELEMENT _____
FUND SOURCE (AMS) _____

FC 9 - OPERATION OF UTILITIES

WATER SERVICE
SEWAGE SERVICE
ELECTRICAL SERVICE
COOLING SERVICE
HEATING SERVICE
OTHER UTILITY OPERATIONS
INACTIVE
TOTAL

U/M	PERFORMANCE TARGETS					COST					SALES		P OF	
	QTY	\$	UNIT COST	PER CAPITA USAGE		CON TRACT	LABOR		MAT'L & SPLY	EQUIP MENT	TOTAL	QTY		\$
				QTY	\$		MIL	CIV						
K GALS														
K GALS														
K XMH														
TONS														
MIL BTU														
NONE														
NONE														
NONE														

FC 10 - MAINTENANCE OF REAL PROPERTY

BUILDINGS
FINANCED
UNFINANCED
SURFACE IMPROVEMENTS
FINANCED
UNFINANCED
GROUNDS
FINANCED
UNFINANCED
UTILITIES
FINANCED
UNFINANCED
INACTIVE
FINANCED
UNFINANCED
TOTAL
FINANCED
UNFINANCED


U/M	QTY	\$ COST					\$ BY PRIORITY			\$ BY C			
		CONTRACT \$	LABOR		MATL & SPLY	EQUIP MENT	TOTAL	P1	P2	P3	N \$	Δ\$ C1	Δ
			MIL	CIV									
	K SQ FT												
	K SQ YDS												
	NONE												
	NONE												
	NONE												
	NONE												

A

			SALES		PRIORITY
ATL & PLY	EQUIPMENT	TOTAL	QTY	\$	

壹拾肆

宣统元年九月二十三日



\$\$\$ BY PRIORITY			\$\$\$ BY CONDITION					CONDITION QUANTITY				
P1	P2	P3	NS	Δ\$ C1	Δ\$ C2	Δ\$ C3	Δ\$ C4	C1	C2	C3	C4	TOTAL

B

FC 11 - FENCE CONSTRUCTION

PROJECTS: \$0 - \$10,000
 FINANCED
 UNFINANCED
 ESTIMATE OF UNPLANNED PROJECTS
 FINANCED
 UNFINANCED

PROJECTS: \$10,000 - \$25,000
 FINANCED
 UNFINANCED
 ESTIMATE OF UNPLANNED PROJECTS
 FINANCED
 UNFINANCED

INACTIVE
 FINANCED
 UNFINANCED

TOTAL
 FINANCED
 UNFINANCED

NR OF PROJ ECTS	\$ COST						\$ BY PRIORITY		
	CONTRACT \$	LABOR		MATL & SPLY	EQUIP MENT	TOTAL	P1	P2	P3
		MIL	CIV						

FC 12 - OTHER ENGINEERING SUPPORT

FIRE PREVENTION AND PROTECTION
 FINANCED
 UNFINANCED

REFUSE HANDLING
 FINANCED
 UNFINANCED

ENTOMLOGY SERVICES
 FINANCED
 UNFINANCED

CUSTODIAL SERVICES
 FINANCED
 UNFINANCED

SNOW REMOVAL AND ICE ALLEVIATION
 FINANCED
 UNFINANCED

MANAGEMENT AND ENGINEERING
 FINANCED
 UNFINANCED

MISCELLANEOUS ACTIVITIES
 FINANCED
 UNFINANCED

INACTIVE
 FINANCED
 UNFINANCED

TOTAL
 FINANCED
 UNFINANCED

IMPACT STATEMENTS -

U/M	QTY	\$ COST							\$ BY PRIORITY		
		CONTRACTS		LABOR		MATL & SPLY	EQUIP. MENT	TOTAL	P1	P2	P3
		QTY	\$	MIL	CIV						

NR PERS

K CU YDS

K SQ FT

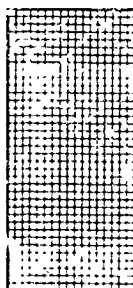
K SQ FT

NONE

NONE

NONE

NONE



A

PRC R-1209
III-29

BY PRIORITY	
P2	P3

BY PRIORITY		
P1	P2	P3

EXHIBIT III-2e (CONTINUED)

B

[illegible]

INSTALLATION
MAJOR SUBORDINATE COMMAND
MAJOR ARMY FIELD COMMAND
PROGRAM ELEMENT
FUND SOURCE (AMS)

PERIOD COVERED MONTHS

☐ 1-4 ☐ 1-6 ☐ 1-9 ☐ 1-12

FC 9 - OPERATION OF UTILITIES - TOTAL
FC 10 - MAINTENANCE OF REAL PROPERTY - TOTAL
FC 11 - PLANT CONSTRUCTION - TOTAL
FC 12 - OTHER ENGINEERING SUPPORT - TOTAL
GRAND TOTAL

[illegible]

RMA WORK FORCE			BASE DATA		PLANNED PERFORMANCE			
PERSONNEL	AUTH TDA	ON HAND	POPULATION SERVED	ACTUAL		\$PER CAPITA	\$PER SQ FT	% FC 10
MILITARY OFFICER EN			RESIDENT NON RESIDENT EFFECTIVE (RES + 1/3 NON RES)		FC 9			
CIVILIAN			COVERED AREA K SQ FT ACTIVE INACTIVE TOTAL		FC 10			
TOTAL					FC 11			
					FC 12			

INSTALLATION _____
 MAJOR SUBORDINATE COMMAND _____
 MAJOR ARMY FIELD COMMAND _____
 PROGRAM ELEMENT _____
 FUND SOURCE (AMS) _____

PERIOD COVERED
MONTHS

☐ 1-4
☐ 1-6
☐ 1-9
☐ 1-12

FC 9 - OPERATION OF UTILITIES

WATER SERVICE
 SEWAGE SERVICE
 ELECTRICAL SERVICE
 COOLING SERVICE
 HEATING SERVICE
 OTHER UTILITY OPERATIONS
 INACTIVE
 TOTAL

U/M	PERFORMANCE TARGETS					COST					SALES		
	QTY	\$	UNIT COST	PER CAPITA USAGE		CONTRACT	LABOR		MATL & SPLY	EQUIP MENT	TOTAL	QTY	\$
				QTY	\$		MIL	CIV					
K GALS													
K GALS													
K KWH													
TONS													
MIL BTU													
NONE													
NONE													
NONE													

FC 10 - MAINTENANCE OF REAL PROPERTY

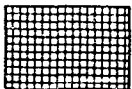
BUILDINGS
 SURFACE IMPROVEMENTS
 GROUNDS
 UTILITIES
 INACTIVE
 TOTAL

U/M	QTY	\$ COST						\$ BY PRIORITY				
		CONTRACT \$	LABOR		MAT'L & SPLY	EQUIP MENT	TOTAL	P1	P2	P3	N \$	A
			MIL	CIV								
K SQ FT												
K SQ YDS												
NONE												
NONE												
NONE												
NONE												

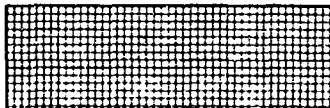
A

1

			SALES		PRI- ORITY	WORK MEASUREMENT		
MATL & SPLY	EQUIP MENT	TOTAL	QTY	\$		FORE- CAST OF STD HRS	% PLND PER- FORM- ANCE	% PLND COV- ERAGE



\$ BY PRIORITY			\$ BY CONDITION					CONDITION QUANTITY					WORK MEASUREMENT		
P1	P2	P3	N \$	Δ\$ C1	Δ\$ C2	Δ\$ C3	Δ\$ C4	C1	C2	C3	C4	TOTAL	FORE- CAST OF STD HRS	% PLND PER- FORM- ANCE	% PLND COV- ERAGE



B

FC 11 - MINOR CONSTRUCTION

PROJECTS: AC - \$10,000
 PLANNED PROJECTS
 ESTIMATE OF UNPLANNED PROJECTS

PROJECTS: \$10,000 - \$25,000
 PLANNED PROJECTS
 ESTIMATE OF UNPLANNED PROJECTS

INACTIVE

TOTAL

NR OF PROJ- ECTS	\$ COST						* BY PRIORITY			WORK MEASUREMENT		
	CONTRACT \$	LABOR		MATL & SPLY	EQUIP. MENT	TOTAL	P1	P2	P3	FORE- CAST OF STD HRS	% PLND PER FORM ANCE	% PLND COV- ERAGE
		MIL	CIV									

FC 12 - OTHER ENGINEERING SUPPORT

FIRE PREVENTION AND PROTECTION

REFUSE HANDLING

ENTOMLOGY SERVICES

CUSTODIAL SERVICES

SNOW REMOVAL AND ICE ALLEVIATION

MANAGEMENT AND ENGINEERING

MISCELLANEOUS ACTIVITIES

INACTIVE

TOTAL

LWM	QTY	\$ COST							\$ BY PRIORITY			WORK MEASUREMENT		
		CONTRACTS		LABOR		MATL & SPLY	EQUIP. MENT	TOTAL	P1	P2	P3	FORE- CAST OF STD HRS	% PLND PER FORM ANCE	% PLND COV- ERAGE
		QTY	\$	MIL	CIV									

NK PERS

K CU YDS

K SQ FT

K SQ FT

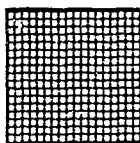
NONE

NONE

NONE

NONE

NONE



A

TY		WORK MEASUREMENT		
P3		FORE CAST OF STD HRS	% PLND PER FORM ANCE	% PLND COV- ERAGE

BY PRIORITY		WORK MEASUREMENT		
P2	P3	FORE CAST OF STD HRS	% PLND PER- FORM ANCE	% PLND COV- ERAGE

B

INSTALLATION _____
 MAJOR SUBORDINATE COMMAND _____
 MAJOR ARMY FIELD COMMAND _____
 PROGRAM ELEMENT _____
 FUND SOURCE (AMS) _____

PERIOD COVERED
MONTHS

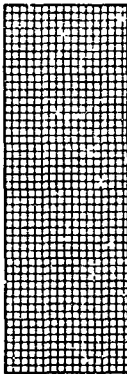
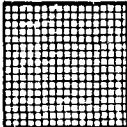
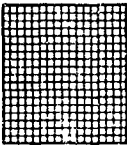
☐ 1-4
☐ 5-6
☐ 7-9
☐ 10-12

FC 9 - OPERATION OF UTILITIES

U/M	PERFORMANCE TARGETS				COST					QTY
	QTY	\$	UNIT COST	PER CAPITA USAGE	CONTRACT	LABOR		MATL & SPLY	EQUIP MERT	TOTAL
				QTY	\$		MIL	CIV		
WATER SERVICE - TOTAL	X GALS									
PURCHASED WATER	X GALS									
FILTERED WATER	X GALS									
UNFILTERED WATER	X GALS									
SEWAGE SERVICE - TOTAL	X GALS									
PURCHASED SEWAGE DISPOSAL	X GALS									
TREATED DOMESTIC SEWAGE	X GALS									
UNTREATED SEWAGE	X GALS									
INDUSTRIAL WASTES	X GALS									
ELECTRICAL SERVICE - TOTAL	X KWH									
PURCHASED ELECTRICAL ENERGY	X KWH									
GENERATED ELECTRICAL ENERGY	X KWH									
COOLING SERVICE - TOTAL	TONS									
AIR CONDITIONING PLANTS	TONS									
REFRIGERATION PLANTS	TONS									
COLD STORAGE PLANTS	HP									
ICE MANUFACTURING UNITS	HP									
HEATING SERVICE - TOTAL	MIL BTU									
HIGH PRESS BOILER PLANTS OVER 3.5 MIL BTU CAPACITY	MIL BTU									
GAS FIRED	MIL BTU									
OIL FIRED	MIL BTU									
COAL FIRED	MIL BTU									
HEATING PLANTS OVER 3.5 MIL BTU CAPACITY	MIL BTU									
GAS FIRED	MIL BTU									
OIL FIRED	MIL BTU									
COAL FIRED	MIL BTU									
HEATING PLANTS 0.75 - 3.5 MIL BTU CAPACITY	MIL BTU									
GAS FIRED	MIL BTU									
OIL FIRED	MIL BTU									
COAL FIRED	MIL BTU									
HEATING PLANTS UNDER 0.75 MIL BTU CAPACITY	MIL BTU									
GAS FIRED	MIL BTU									
OIL FIRED	MIL BTU									
COAL FIRED	MIL BTU									
PURCHASED STEAM AND HOT WATER	MIL BTU									
COAL HANDLING	TONS									
OTHER UTILITY OPERATIONS										
INACTIVE	NONE									
TOTAL FC 9	NONE									

A

COST				SALES		PRI- ORITY
LABOR	MATL & SPLY	EQUIP- MENT	TOTAL	QTY	\$	
CIV						



B

FC 10 - MAINTENANCE OF REAL PROPERTY

BUILDINGS - TOTAL	K SQ FT	NR BLOS
PERMANENT - TOTAL	K SQ FT	NR BLOS
TEMPERARY - TOTAL	K SQ FT	NR BLOS
TACCP HOUSING	K SQ FT	NR BLOS
PERMANENT	K SQ FT	NR BLOS
TEMPERARY	K SQ FT	NR BLOS
FAMILY HOUSING	K SQ FT	UNITS
COMMUNITY	K SQ FT	NR BLOS
PERMANENT	K SQ FT	NR BLOS
TEMPERARY	K SQ FT	NR BLOS
OPERATIONAL	K SQ FT	NR BLOS
PERMANENT	K SQ FT	NR BLOS
TEN CHAY	K SQ FT	NR BLOS
TRAINING	K SQ FT	NR BLOS
PERMANENT	K SQ FT	NR BLOS
TEMPERARY	K SQ FT	NR BLOS
MAINTENANCE	K SQ FT	NR BLOS
PERMANENT	K SQ FT	NR BLOS
TEMPERARY	K SQ FT	NR BLOS
PROTECTION	K SQ FT	NR BLOS
PERMANENT	K SQ FT	NR BLOS
TEMPERARY	K SQ FT	NR BLOS
ROTE	K SQ FT	NR BLOS
PERMANENT	K SQ FT	NR BLOS
TEMPERARY	K SQ FT	NR BLOS
STORAGE	K SQ FT	NR BLOS
PERMANENT	K SQ FT	NR BLOS
TEMPERARY	K SQ FT	NR BLOS
MEDICAL	K SQ FT	NR BLOS
PERMANENT	K SQ FT	NR BLOS
TEMPERARY	K SQ FT	NR BLOS
ADMINISTRATIVE	K SQ FT	NR BLOS
PERMANENT	K SQ FT	NR BLOS
TEMPERARY	K SQ FT	NR BLOS
OTHER	K SQ FT	NR BLOS
PERMANENT	K SQ FT	NR BLOS
TEMPERARY	K SQ FT	NR BLOS
INACTIVE	K SQ FT	NR BLOS
PERMANENT	K SQ FT	NR BLOS
TEMPERARY	K SQ FT	NR BLOS
SURFACE IMPROVEMENTS	K SQ YDS	
ROADS - TOTAL	K SQ YDS	MILES
CONCRETE	K SQ YDS	MILES
BITUMINOUS	K SQ YDS	MILES
OTHER	K SQ YDS	MILES
AIRFIELD PAVEMENTS - TOTAL	K SQ YDS	K LIN FT
CONCRETE	K SQ YDS	K LIN FT
BITUMINOUS	K SQ YDS	K LIN FT
OTHER	K SQ YDS	
PARKING, OPEN STORAGE & WALKS - TOTAL	K SQ YDS	
CONCRETE	K SQ YDS	
BITUMINOUS	K SQ YDS	
OTHER	K SQ YDS	
RAILROADS	MILES	
BRIDGES	LIN FT	NR BRIDGES
WATERFRONT FACILITIES	NONE	
WATERWAYS	NONE	
MISC. STRUCTURES	NONE	NR STACS
INACTIVE	NONE	

COST					BY PRI		
CONTRACT \$	LABOR		MATL & PLY	EQUIP- MENT	TOTAL	P1	P2
	MIL	CIV					

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III-39

\$ COST				\$ BY PRIORITY			\$ BY CONDITION					CONDITION QUANTITY				
LABOR	MATL & SPLY	EQUIP. MENT	TOTAL	P1	P2	P3	N \$	Δ\$ C1	Δ\$ C2	Δ\$ C3	Δ\$ C4	C1	C2	C3	C4	TOTAL
CIV																

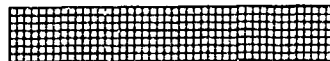
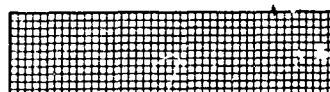


EXHIBIT III-2h (CONTINUED)

B

A

COST					BY PRIORITY			BY CONDITION					CONDITION QUANTITY				
LABOR		MATERIAL & SUPPLY	EQUIP MENT	TOTAL	P1	P2	P3	N\$	Δ\$ C1	Δ\$ C2	Δ\$ C3	Δ\$ C4	C1	C2	C3	C4	TOTAL
L	CIV																



B

FC 11 - MINOR CONSTRUCTION

PROJECTS: \$0 - \$10,000
PLANNED PROJECTS
ESTIMATE OF UNPLANNED PROJECTS

PROJECTS: \$10,000 - \$25,000
PLANNED PROJECTS
ESTIMATE OF UNPLANNED PROJECTS

INACTIVE

TOTAL FC 11

NR OF PROJ- ECTS	\$ COST						\$ BY PRIORITY		
	CONTRACT \$	LABOR		MATL & SPLY	EQUIP- MENT	TOTAL	P1	P2	P3
		MIL	CIV						

FC 12 - OTHER ENGINEERING SUPPORT

FIRE PREVENTION AND PROTECTION

REFUSE HANDLING
COLLECTION
DISPOSAL
LANDFILL
INCINERATION

ENTOMOLOGICAL SERVICES

CUSTODIAL SERVICES

SNOW REMOVAL AND ICE ALLEVIATION

MANAGEMENT AND ENGINEERING

MISCELLANEOUS ACTIVITIES
RENT FOR REAL PROPERTY UNDER LEASE
SPECIAL MAINTENANCE ACTIVITIES
PURCHASE LOCAL MAINTENANCE SERVICES
PURCHASE OF MGS EQUIPMENT (OVER \$200)
CAP & MTC OF MGS EQUIPMENT
WASTE PLANNING
OTHER

INACTIVE

TOTAL FC 12

U/M	QTY	\$ COST							\$ BY PRIORITY		
		CONTRACTS		LABOR		MATL & SPLY	EQUIP- MENT	TOTAL	P1	P2	P3
		QTY	\$	MIL	CIV						

NR PERS

K CU YDS
K CU YDS
K CU YDS
K CU YDS

K SQ FT

K SQ FT

NONE

NONE

NONE

NONE

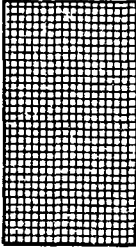
NONE

NONE

NONE

NONE

NONE



A

		S BY PRIORITY		
EQUIP MENT	TOTAL	P1	P2	P3

			S BY PRIORITY		
MATL & SPLY	EQUIP MENT	TOTAL	P1	P2	P3

B

PERIOD COVERED
MONTHS

☐ 1 - 4 Actual
☐ 1 - 6 Projected
☐ 1 - 9 Projected
☐ 1 - 12 Projected

WATER SERVICE
ACTUAL/PROJECTED
ENTRY FROM SAND

SEWAGE SERVICE
ACTUAL/PROJECTED
ENTRY FROM SAND

ELECTRICAL SERVICE
ACTUAL/PROJECTED
ENTRY FROM SAND

CCCLING SERVICE
ACTUAL/PROJECTED
ENTRY FROM SAMP

HEATING SERVICE
ACTUAL/PROJECTED
ENTRY FROM SAMP

OTHER UTILITY OPERATIONS
ACTUAL/PROJECTED
ENTRY FROM SALE

INACTIVE
ACTUAL/PROJECTED
ENTRY FROM SAMP

TOTAL
ACTUAL/PROJECTED
ENTRY FROM SAHP

FC 10 - MAINTENANCE OF REAL PROPERTY

BUILDINGS
ACTUAL/PROJECTED
ENTRY FROM SAHP

**SURFACE IMPROVEMENTS
ACTUAL/PROJECTED
ENTRY FROM SAND**

GROUNDS
 ACTUAL/PROJECTED
 ENTRY FROM SAND

UTILITIES
ACTUAL/PROJECTED
ENTRY FROM SAHP

INACTIVE
ACTUAL/PROJECTED
ENTRY FROM SAND

TOTAL
ACTUAL/PROJECTED
ENTER FROM SAND

[illegible]

E		COST								SALES		CHANGE IN FIN- ANCED \$
PER CAPITA USAGE				CON TRACT	LABOR		MAT'L SPLY	EQUIP- MENT	TOTAL			
ACTUAL		TARGET			MIL	CIV				QTY	\$	
QTY	\$	QTY	\$									

QTY	\$	QTY	\$		MIL	CIV						

		\$ BY PRIORITY			\$ BY CONDITION					CONDITION QUANTITY					CHANGE IN FIN- ANCED \$
EQUIP MENT	TOTAL	P1	P2	P3	N \$	Δ\$ C1	Δ\$ C2	Δ\$ C3	Δ\$ C4	C1	C2	C3	C4	TOTAL	

QTY	\$	QTY	\$												

EXHIBIT III-2j RPMA REPORT FORMAT,
MYRR SUMMARY

B

PROJECTS: 8C - \$10,000
 PLANNED PROJECTS
 ACTUAL/PROJECTED
 ENTRY FROM S&P
 ESTIMATE OF UNPLANNED PROJECTS
 ACTUAL/PROJECTED
 ENTRY FROM S&P

PROJECTS: 810,000 - 825,000
 PLANNED PROJECTS
 ACTUAL/PROJECTED
 ENTRY FROM SAWP
 ESTIMATE OF UNPLANNED PROJECTS
 ACTUAL/PROJECTED
 ENTRY FROM SAWP

INACTIVE
ACTUAL/PROJECTED
ENTRY FROM SAND

TOTAL ACTUAL/PROJECTED ENTRY FROM SAMP

[illegible]

FIRE PREVENTION AND PROTECTION
ACTUAL/PROJECTED
ENTRY FROM SAND

REFUSE HANDLING
ACTUAL/PROJECTED
ENTRY FROM SAND

BATCH/CLCY SERVICES
 ACTUAL/PROJECTED
 ENTRY FROM SAND

CUSTODIAL SERVICES
ACTUAL/PROJECTED
ENTRY FROM SAME

SNOW REMOVAL AND ICE ALLEVIATION
ACTUAL/PROJECTED
ENTRY FROM SAND

MANAGEMENT AND ENGINEERING
ACTUAL/PROJECTED
ENTRY FROM SAND

MISCELLANEOUS ACTIVITIES
ACTUAL/PROJECTED
ENTRY FROM SAMP

INACTIVE
ACTUAL/PROJECTED
ENTRY FROM SAND

ACTUAL/FBIJECTEL
ENTRY FROM SAND

IMPACT STATEMENTS -

[illegible]

A

PRIORITY		CHANGE IN FIN- ANCED \$
P2	P3	

XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX

\$ BY PRIORITY			CHANGE IN FIN- ANCED \$
P1	P2	P3	

XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX

B

EXHIBIT III-2k RPMA REPORT FORMAT, PYPR CONSOLIDATION

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III-51

PERIOD COVERED
MONTHS

☐ 1-4
☐ 1-6
☐ 1-9
☐ 1-12

INSTALLATION _____
MAJOR SUBORDINATE COMMAND _____
MAJOR ARMY FIELD COMMAND _____
PROGRAM ELEMENT _____
FUND SOURCE (ANS) _____

COST					\$ BY PRIORITY			\$ BY CONDITION					
CONTRACT	LABOR		MATL & SPLY	EQUIP MENT	TOTAL	P1	P2	P3	N\$	Δ\$ C1	Δ\$ C2	Δ\$ C3	Δ\$ C4
	MIL	CIV											

FC 9 - OPERATION OF UTILITIES - TOTAL
ENTRY FROM SANP

FC 10 - MAINTENANCE OF REAL PROPERTY - TOTAL
ENTRY FROM SANP

FC 11 - MINCP CONSTRUCTION - TOTAL
ENTRY FROM SANP

FC 12 - OTHER ENGINEERING SUPPORT - TOTAL
ENTRY FROM SANP

GRAND TOTAL
ENTRY FROM SANP

SOURCE OF FUNDS AND TYPE OF FINANCING

BUDGET ACCOUNT	Direct Financing	Reimbursable Financing	Prior FY Funds (under orders)	TOTAL
NSA				
CMA Accts for dist				
Carrier Program Total				
FHMA				
RDTE				
PEMA				
AIF Overhead				
Other Army				
Other Army				
Other Federal				
Other Federal				
Non-approp funds				
Other				
GRAND TOTAL				

RPMA WORK FORCE

PERSONNEL	AUTH TDA	ON HAND
MILITARY OFFICER EM		
CIVILIAN		
TOTAL		

BASE DATA

POPULATION SERVED	ACTUAL
RESIDENT	
NON-RESIDENT	
EFFECTIVE (RES + 1/3 NON-RES)	
COVERED AREA, K SQ FT	
ACTIVE	
INACTIVE	
TOTAL	

ACTUAL PERFORMANCE

FC 9	\$ PER CAPITA	\$ PER SQ FT	FC 10
FC 10			
FC 11			
FC 12			

PERIOD COVERED
MONTHS

☐ 1 - 4
☐ 1 - 6
☐ 1 - 9
☐ 1 - 12

WATER SERVICE
ACTUAL
ENTRY FROM SAND

STAGE SERVICE
ACTUAL
ENTRY FROM SAMP

ELECTRICAL SERVICE
ACTUAL
ENTRY FROM SAND

COLLING SERVICE
ACTUAL
ENTRY FROM SAND

HEATING SERVICE
ACTUAL
ENTRY FROM SAND

OTHER UTILITY OPERATIONS
ACTUAL
ENTRY FROM SAMP

INACTIVE
ACTUAL
ENTRY FROM SAMP

TOTAL
ACTUAL
ENTRY FROM SAMP

BUILDINGS
ACTUAL
ENTRY FROM SAND

SURFACE IMPROVEMENTS
ACTUAL
ENTAY FROM SAND

GROUND
ACTUAL
CYCLE FROM SAND

UTILITIES
ACTUAL
ENTRY FROM SAND

INACTIVE
ACTUAL
ENTRY FRLP SAND

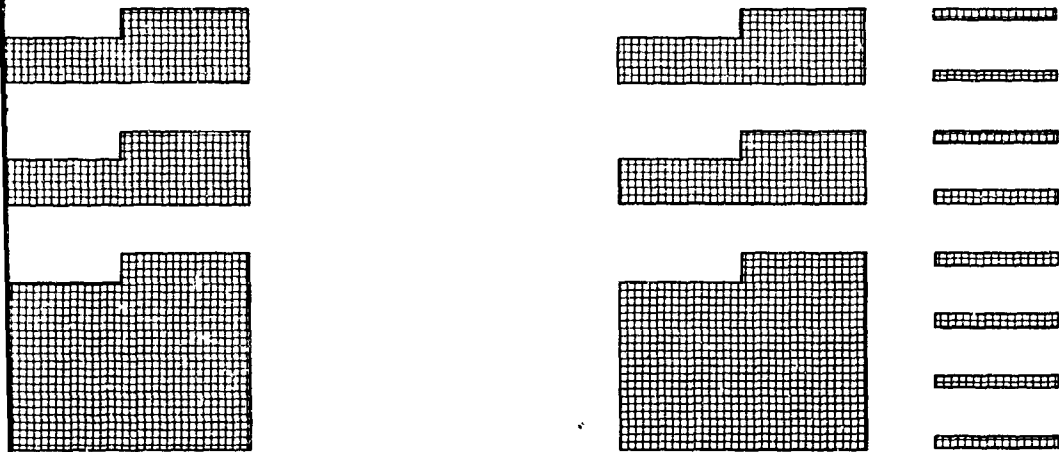
TOTAL
ACTUAL
CITY OF ELM SPRING

U/M	PERFORMANCE								CONTRACT
	TOTAL ACTUAL			CORRECTED TARG.		STD UNIT COST	PER CAPITA USAGE		
	QTY	\$	UNIT COST	QTY	\$		ACTUAL	TARGET	
							QTY	\$	
K GALS									
K GALS									
K KWH									
TU \$									
MIL BTU									
NONE									
NONE									
NONE									

[illegible]

A

PER CAPITA USAGE				COST						SALES		TARGET NEXT FY		WORK MEASUREMENT				
ACTUAL		TARGET		CONTRACT	LABOR		MATL & SPLY	EQUIPMENT	TOTAL	QTY	\$	QTY	\$	STD HRS EST	ACT'L HRS COV'D BY STDS	TOTAL WORKING HRS	% PERFORMANCE	% COVERAGE
QTY	\$	QTY	\$		MIL	CIV												



		\$ BY PRIORITY			\$ BY CONDITION					CONDITION QUANTITY					WORK MEASUREMENT				
EQUIPMENT	TOTAL	P1	P2	P3	N\$	Δ\$ C1	Δ\$ C2	Δ\$ C3	Δ\$ C4	C1	C2	C3	C4	TOTAL	STD HRS EST	ACT'L HRS COV'D BY STDS	TOTAL WORKING HRS	% PERFORMANCE	% COVERAGE

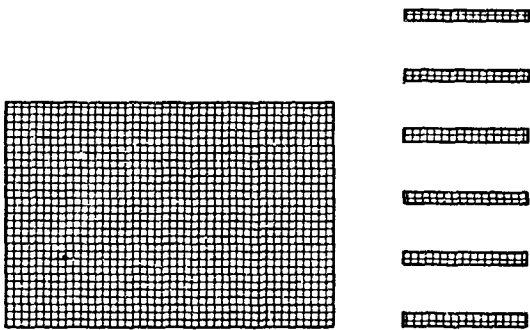


EXHIBIT III-21 RPMA REPORT FORMAT, PYPR SUMMARY

B

```

PROJECTS: 10 - $10,000
  PLANNED PROJECTS
    ACTUAL
    ENTRY FROM SAMP
  ESTIMATE OF UNPLANNED PROJECTS
    ACTUAL
    ENTRY FROM SAMP

PROJECTS: $10,000 - $25,000
  PLANNED PROJECTS
    ACTUAL
    ENTRY FROM SAMP
  ESTIMATE OF UNPLANNED PROJECTS
    ACTUAL
    ENTRY FROM SAMP

INACTIVE
  ACTUAL
  ENTRY FROM SAMP

TOTAL
  ACTUAL
  ENTRY FROM SAMP

```

[illegible]

FIRE PREVENTION AND PROTECTION	
ACTUAL	
ENTRY FROM SAMP	
REFUSE HANDLING	
ACTUAL	
ENTRY FROM SAMP	
ENTOMOLOGICAL SERVICES	
ACTUAL	
ENTRY FROM SAMP	
CUSTODIAL SERVICES	
ACTUAL	
ENTRY FROM SAMP	
SNOW REMOVAL AND ICE ALLEVIATION	
ACTUAL	
ENTRY FROM SAMP	
MANAGEMENT AND ENGINEERING	
ACTUAL	
ENTRY FROM SAMP	
MISCELLANEOUS ACTIVITIES	
ACTUAL	
ENTRY FROM SAMP	
INACTIVE	
ACTUAL	
ENTRY FROM SAMP	
TOTAL	
ACTUAL	
ENTRY FROM SAMP	

[illegible]

IMPACT STATEMENTS -

\$ BY PRIORITY				WORK MEASUREMENT				
TOTAL	P1	P2	P3	STD HRS EST	ACT'L HRS COV'D BY STDS	TOTAL WORK ING HRS	% PER FORM ANCE	% COV ERAGE

[REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]

		\$ BY PRIORITY			WORK MEASUREMENT				
EQUIP MENT	TOTAL	P1	P2	P3	STD HRS EST	ACT'L HRS COV'D BY STDS	TOTAL W ING HRS	% PER- FORM ANCE	% COV ERAGE

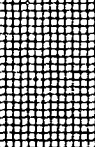
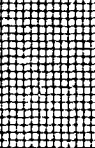
[REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]

B

☐ 1 - 4
☐ 1 - 8
☐ 1 - 9
☐ 1 - 12

NONE

PER CAPITA USAGE				CON TRACT	COST				SALES		TARGET NEXT FY		
ACTUAL		TARGET			LABOR		MAT'L & SPLY	EQUIP MENT	TOTAL	QTY	\$	QTY	\$
QTY	\$	QTY	\$		MIL	CIV							



**EXHIBIT III-2m RPMA REPORT FORMAT,
PYPR DETAIL**

3

PERFORMANCE ITEMS

WATER SERVICE
 SAMPLES - J POSITIVE PORTIONS
 10 ML PERTICNS POSITIVE
 ELECTRICAL SERVICE
 MOTORS (1/2 HP & OVER)
 DISTRIBUTION TRANSFORMERS
 POWER FAILURES ON POST
 FUEL USED TO GENERATE ELEC ENERGY
 COOLING SERVICE
 REFRIGERANT CHARGE
 HEATING SERVICE
 FUEL CONSUMED
 HEATED SPACE
 DEGREE DAYS 65 DEGREE BASE

AMOUNT		PERFORMANCE		
U/M	QTY	U/M	STD	ACTUAL
	NR SAMPLES	%	5%	
	NR POS POR	%	10%	
	NR MOTORS	% Failures		
	KVA CAP	KVA/KW Demand		
	NONE	NR Failures		
	STD TONS	KWH/GAL		
	POUNDS	% Replacement		
	STD TONS	% Efficiency		
	K CU FT	Pounds		
	NUMBER	Per K CU FT		
		Per Degree-Day		
		Tons/Man-Day		

HEATING SERVICE TARGETS

DEGREE DAYS 65 DEGREE BASE
 DEGREE DAYS 50 DEGREE BASE
 K MDL 56 DEGREES AND ABOVE
 K MDL 55 DEGREES AND BELOW
 FUEL FACTOR
 FUEL COOKING AND HOT WATER
 FUEL LAUNDRY
 SPECIAL PURPOSE FUELS
 FUEL SALES

U/M	TARGETS	
	COR-REC-TED	NEXT FY
	NUMBER	
	NUMBER	
	NUMBER	
	NUMBER	
	STD TONS	
	STD TONS	
	STD TONS	
	STD TONS	

HEATING SERVICE PERFORMANCE

HE PREP BOILER PLANTS OVER 3.5 MIL BTU CAPACITY
 GAS FIRED
 OIL FIRED
 COAL FIRED
 HEATING PLANTS OVER 3.5 MIL BTU CAPACITY
 GAS FIRED
 OIL FIRED
 COAL FIRED
 HEATING PLANTS 0.75 - 3.5 MIL BTU CAPACITY
 GAS FIRED
 OIL FIRED
 COAL FIRED
 HEATING PLANTS UNDER 0.75 MIL BTU CAPACITY
 GAS FIRED
 OIL FIRED
 COAL FIRED

NARRATIVE REVIEW -

CONTRACT NUMBER.
 CONTRACTOR NAME AND ADDRESS.

FUEL CONSUMED			MIL BTU PRODUCED	K CU FT HEATED SPACE	MAN DAYS LABOR (8 HRS)		TOTAL OP'NG COST	PERFORMANCE FACTORS				
STD TONS	\$ COST	\$ PER STD TON			MIL	CIV		\$ PER MIL BTU PRODUCED		% PLANT EFFICIENCY		\$
								STD	ACTUAL	STD	ACTUAL	

A

AL
ST

PERFORMANCE FACTORS					
\$ PER MIL BTU PRODUCED		% PLANT EFFICIENCY		STD TONS/ MAN-DAY	
STD	ACTUAL	STD	ACTUAL	STD	ACTUAL

B

FC 10 - MAINTENANCE OF REAL PROPERTY

BARBERSHOPS	PERMANENT	- TOTAL
	TEMPORARY	- TOTAL
TRUCK HUSING	PERMANENT	- TOTAL
	TEMPORARY	- TOTAL
BARRACKS	PERMANENT	
	TEMPORARY	
MESS HALLS	PERMANENT	
	TEMPORARY	
OTHER	PERMANENT	
	TEMPORARY	
FAMILY HUSING	PERMANENT	
	TEMPORARY	
CAPEHART	PERMANENT	
WHERRY	PERMANENT	
FOREIGN	PERMANENT	
OTHER	PERMANENT	
COMMUNITY	PERMANENT	- TOTAL
	TEMPORARY	- TOTAL
PERSONNEL	PERMANENT	
	TEMPORARY	
RECREATION	PERMANENT	
	TEMPORARY	
OPERATIONAL	PERMANENT	
	TEMPORARY	
TRAINING	PERMANENT	
	TEMPORARY	
MAINTENANCE	PERMANENT	
	TEMPORARY	
PRODUCTION	PERMANENT	
	TEMPORARY	
NOTE	PERMANENT	
	TEMPORARY	
STORAGE	PERMANENT	- TOTAL
	TEMPORARY	- TOTAL
LICUID	PERMANENT	
	TEMPORARY	
AMMUNITION	PERMANENT	
	TEMPORARY	
COLD	PERMANENT	
	TEMPORARY	
COVERED	PERMANENT	
	TEMPORARY	
MEDICAL	PERMANENT	- TOTAL
	TEMPORARY	- TOTAL
HOSPITALS	PERMANENT	
	TEMPORARY	
OTHER (INCL DISPENSARY)	PERMANENT	
	TEMPORARY	
ADMINISTRATIVE	PERMANENT	
	TEMPORARY	
OTHER	PERMANENT	
	TEMPORARY	
INACTIVE	PERMANENT	
	TEMPORARY	

[illegible]

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PRC R-1209
III-61

S COST						S BY PRIORITY			S BY CONDITION					CONDITION QUANTITY				
CONTRACT S	LABOR		MATL & SPLY	EQUIP MENT	TOTAL	P1	P2	P3	N S	ΔS C1	ΔS C2	ΔS C3	ΔS C4	C1	C2	C3	C4	TOTAL
	MIL	CIV																

EXHIBIT III-2m (CONTINUED)

B

	U/M	QTY	PERFORMANCE				\$ COST					
			U/M	TOTAL		ACTUAL	STD UNIT COST	CONTRACT \$	\$ COST		EQUIP- MENT	
				QTY	\$				UNIT COST	LABOR		MATL & SPLY
SURFACE IMPROVEMENTS												
HLAGS - TOTAL	K SQ YDS											
CONCRETE	K SQ YDS											
BITUMINOUS	K SQ YDS											
OTHER	K SQ YDS											
ASPHALT PAVEMENTS - TOTAL	K SQ YDS											
CONCRETE	K SQ YDS											
BITUMINOUS	K SQ YDS											
OTHER	K SQ YDS											
PARKING, OPEN STORAGE & WALKS	K SQ YDS											
CONCRETE	K SQ YDS											
BITUMINOUS	K SQ YDS											
OTHER	K SQ YDS											
RAILROADS	K SQ YDS											
PIECES	LN FT											
WATERFRONT FACILITIES	NONE											
WATERWAYS	NONE											
MISC. STRUCTURES	NONE											
INACTIVE	NONE											
GC/CLADS												
IMPROVED	ACRES											
SEMI-IMPROVED (LESS RANGES)	ACRES											
UNIMPROVED (LESS RANGES)	ACRES											
RANGES	ACRES											
WILDLIFE CONSERVATION	ACRES											
INACTIVE	NONE											
UTILITIES												
WATER SYSTEMS												
FILTRATION AND TREATMENT PLANTS	K GPD CAP											
PUMPING PLANTS	GPM CAP											
DISTRIBUTION MAINS AND SERVICES	LN FT											
SEWAGE SYSTEMS												
TREATMENT PLANTS	K GPD CAP											
PRIMARY	K GPD CAP											
SECONDARY	K GPD CAP											
TERTIARY	K GPD CAP											
SEPTIC TANKS	K GPD CAP											
OXIDATION PONDS	K GPD CAP											
SEWAGE LAGOONS	K GPD CAP											
INDUSTRIAL WASTES	K GPD CAP											
PUMPING PLANTS	GPM CAP											
COLLECTION SYSTEMS	LN FT											
ELECTRICAL SYSTEMS												
SUBSTATIONS AND SWITCHING STATIONS	KVA CAP											
GENERATING PLANTS	KVA CAP											
DISTRIBUTION SYSTEMS	LN FT											
OVER HEAD LINES	LN FT											
UNDERGROUND LINES	LN FT											
DISTRIBUTION TRANSFORMERS	KVA CAP											
EXTERIOR LIGHTING	NR LIGHTS											
CELLING SYSTEMS												
AIR CONDITIONING PLANTS	TONS CAP											
EVER 100 TONS CAPACITY	TONS CAP											
25 TO 100 TONS CAPACITY	TONS CAP											
5 TO 25 TONS CAPACITY	TONS CAP											
(LESS THAN 5 TONS CAPACITY - MIN-ADD)	TONS CAP											
REFRIGERATION PLANTS	TONS CAP											
5 TO 25 TONS CAPACITY	TONS CAP											
(LESS THAN 5 TONS CAPACITY - MIN-ADD)	TONS CAP											
COLD STORAGE PLANTS	HP CAP											
ICE MANUFACTURING UNITS	HP CAP											
HEATING SYSTEMS												
HIGH PRESS BOILER PLANTS (OVER 3.5 MIL BTU)	MIL BTU CAP											
GAS FIRED	MIL BTU CAP											
OIL FIRED	MIL BTU CAP											
COAL FIRED	MIL BTU CAP											
HEATING PLANTS (OVER 3.5 MIL BTU)	MIL BTU CAP											
GAS FIRED	MIL BTU CAP											
OIL FIRED	MIL BTU CAP											
COAL FIRED	MIL BTU CAP											
HEATING PLANTS (0.75 - 3.5 MIL BTU)	MIL BTU CAP											
GAS FIRED	MIL BTU CAP											
OIL FIRED	MIL BTU CAP											
COAL FIRED	MIL BTU CAP											
OTHER HEATING SUPPORT	NONE											
STEAM AND HOT WATER DISTRIBUTION SYSTEMS	LN FT											
GAS DISTRIBUTION SYSTEMS	LN FT											

A

PRC R-1209
III-63

PERFORMANCE		COST						BY PRIORITY			BY CONDITION					CONDITION QUANTITY				
ACTUAL	STD UNIT COST	CONTRACT \$	LABOR		MATL & SPLY	EQUIP. MENT	TOTAL	P1	P2	P3	N \$	Δ\$ C1	Δ\$ C2	Δ\$ C3	Δ\$ C4	C1	C2	C3	C4	TOTAL
UNIT COST			MIL	CIV																

EXHIBIT III-2m (CONTINUED)

B

TOTAL FC 10

TOTAL FC 11

TOTAL OF 12

NR OF PROJ- ECTS	\$ COST						\$ BY PRIORITY		
	CONTRACT \$	LABOR		MAT'L & SPLY	EQUIP- MENT	TOTAL	P1	P2	P3
		MIL	CIV						

POST

[illegible]

\$ COST						\$ BY PRIORITY			\$ BY CONDITION					CONDITION QUANTITY				
CONTRACT \$	LABOR		MATL & SPLY	EQUIP- MENT	TOTAL	P1	P2	P3	N \$	Δ\$ C1	Δ\$ C2	Δ\$ C3	Δ\$ C4	C1	C2	C3	C4	TOTAL
	MIL	CIV																

\$ BY PRIORITY			
TOTAL	P1	P2	P3

FA USAGE		\$ COST							\$ BY PRIORITY		
STANDARD		CONTRACTS		LABOR		MATL & SPLY	EQUIP- MENT	TOTAL	P1	P2	P3
QTY	\$	QTY	\$	MIL	CIV						

B

BUILDINGS - TOTAL
 PERMANENT - TOTAL
 TEMPORARY - TOTAL
 THCCP HOUSING
 PERMANENT
 TEMPORARY
 FAMILY HOUSING
 COMMUNITY
 PERMANENT
 TEMPORARY
 OPERATIONAL
 PERMANENT
 TEMPORARY
 TRAINING
 PERMANENT
 TEMPORARY
 PAINTSPACE
 PERMANENT
 TEMPORARY
 PHCOLLECTION
 PERMANENT
 TEMPORARY
 ROUTE
 PERMANENT
 TEMPORARY
 STORAGE
 PERMANENT
 TEMPORARY
 MEDICAL
 PERMANENT
 TEMPORARY
 ADMINISTRATIVE
 PERMANENT
 TEMPORARY
 OTHER
 PERMANENT
 TEMPORARY
 INACTIVE
 PERMANENT
 TEMPORARY

SURFACE IMPROVEMENTS
 ROADS - TOTAL
 CONCRETE
 BITUMINOUS
 OTHER
 AIRFIELD PAVEMENTS - TOTAL
 CONCRETE
 BITUMINOUS
 OTHER
 PARKING, OPEN STORAGE & WALKS - TOTAL
 CONCRETE
 BITUMINOUS
 OTHER

RAILROADS

PERFORMANCE FACTORS

TOTAL	ROOFING				PAINTING			FLOOR COVERING			BUILDING SHELL			HEATING SYSTEM			AI
\$ COST	SQS	TOTAL COST	UNIT COST		SQS	TOTAL COST	UNIT COST	SQ. FT	TOTAL COST	UNIT COST	MAN DAYS	TOTAL COST	UNIT COST	MAN DAYS	TOTAL COST	UNIT COST	MAN DAY

TOTAL	SURFACE TREATMENT				OVERLAYS			APPURTENANTY FACILITIES			PREVENTIVE MAINTENANCE			OTHER		
\$ COST	U/M SQ. YDS.	TOTAL COST	UNIT COST		U/M SQ. YDS.	TOTAL COST	UNIT COST	U/M MAN-DAYS	TOTAL COST	UNIT COST	U/M MAN-DAYS	TOTAL COST	UNIT COST	U/M MAN-DAYS	TOTAL COST	UNIT COST

TOTAL	TRACK REPLACEMENT				TIES REPLACED			BALLAST PLACED			PREVENTIVE MAINTENANCE			OTHER		
\$ COST	U/M LIN. FT.	TOTAL COST	UNIT COST		MR. TIES REPL.	TOTAL COST	UNIT COST	U/M CU. YDS.	TOTAL COST	UNIT COST	U/M MAN-DAYS	TOTAL COST	UNIT COST	U/M MAN-DAYS	TOTAL COST	UNIT COST

A

BUILDING SHELL			HEATING SYSTEM			AIR CONDITIONING			PLUMBING			ELECTRICAL			PREVENTIVE MAINTENANCE			OTHER		
MAN-DAYS	TOTAL COST	UNIT COST	MAN-DAYS	TOTAL COST	UNIT COST	MAN-DAYS	TOTAL COST	UNIT COST	MAN-DAYS	TOTAL COST	UNIT COST	MAN-DAYS	TOTAL COST	UNIT COST	MAN-DAYS	TOTAL COST	UNIT COST	MAN-DAYS	TOTAL COST	UNIT COST

PREVENTIVE MAINTENANCE			OTHER		
TOTAL COST	UNIT COST	U/M MAN-DAYS	TOTAL COST	UNIT COST	U/M MAN-DAYS

PREVENTIVE MAINTENANCE			OTHER		
TOTAL COST	UNIT COST	U/M MAN-DAYS	TOTAL COST	UNIT COST	U/M MAN-DAYS

B

GROUNDS
 IMPROVE
 SEMI-IMPROVE (LESS RANGES)
 UNIMPROVE (LESS RANGES)
 RANGES
 WILDLIFE (CONSERVATION)
 INACTIVE

TOTAL	MOWING			FERTILIZING			PESTICIDING & HERBICIDING			SEEDING			SODDING		
\$ COST	ACRES	TOTAL COST	UNIT COST	ACRES	TOTAL COST	UNIT COST	ACRES	TOTAL COST	UNIT COST	ACRES	TOTAL COST	UNIT COST	SQ. FT.	TOTAL COST	UNIT COST

UTILITIES
 WATER SYSTEMS
 PUMPING PLANTS
 FILTRATION AND TREATMENT PLANTS
 DISTRIBUTION MAINS AND SERVICES
 SEWAGE SYSTEMS
 TREATMENT PLANTS
 PUMPING PLANTS
 COLLECTION SYSTEMS
 ELECTRICAL SYSTEMS
 GENERATING PLANTS
 SUBSTATIONS AND SWITCHING STATIONS
 DISTRIBUTION SYSTEMS
 DISTRIBUTION LINES
 DISTRIBUTION TRANSFORMERS
 EXTERIOR LIGHTING
 COOLING SYSTEMS
 AIR CONDITIONING PLANTS
 REFRIGERATION PLANTS
 COLD STORAGE PLANTS
 ICE MANUFACTURING UNITS
 HEATING SYSTEMS
 HIGH PRES. BOILER PLANTS (OVER 3.5 MIL BTU)
 HEATING PLANTS (UP TO 3.5 MIL BTU)
 HEATING PLANTS (0.75 - 3.5 MIL BTU)
 OTHER HEATING SUPPORT
 STEAM AND HOT WATER DISTRIBUTION SYSTEMS
 GAS DISTRIBUTION SYSTEMS

TOTAL	BUILDING			INSTALLED EQUIPMENT			MAIN/LATERAL			OTHER		
\$ COST	MAN-DAYS	TOTAL COST	UNIT COST	MAN-DAYS	TOTAL COST	UNIT COST	MAN-DAYS	TOTAL COST	UNIT COST	MAN-DAYS	TOTAL COST	UNIT COST

A

PLANT	SEEDING			SODDING			SPRINKLING			OTHER		
	UNIT COST	ACRES	UNIT COST	SQ. FT.	TOTAL COST	UNIT COST	MAN. DAYS	TOTAL COST	UNIT COST	MAN. DAYS	TOTAL COST	UNIT COST

GENERAL		OTHER	
UNIT COST	MAN. DAYS	TOTAL COST	UNIT COST

B

EXHIBIT III-2o RPMA REPORT FORMAT, EQUIPMENT AND PROJECT LISTS

Mobile Equipment List

No.	Program/Program Element	Equipment Description	Fund Source	Priority	No. Units	Unit Cost	Total Cost
1							
...							
N							

Project List

Priority Ordering	Priority Group	Project Description	Type Work	Scope		Cost	
				U/M	Quantity	Funded	Unfunded
<div>Projects Under \$10,000</div> <div>Lump Sum Total</div> <div>Program I/Program Element (1)</div> <div>2</div> <div>4</div> <div>5</div> <div>Program IV/Program Element (1)</div> <div>1</div> <div>3</div> <div>Total</div>							

Note: (1) Projects over \$10,000 each.

Legend: Data not applicable.

RPMA Report																
	Installation						MSC									
	Dispatch						Dispatch									
							Installation						MSC			
	C	S	D	F C	E L	P L	C	S	D	F C	E L	P L	C	S	D	F C
URR	X	X	X ⁽³⁾	X ⁽²⁾	X	X	X	X	X ⁽³⁾	X ⁽²⁾	X	X	X	X	X ⁽³⁾	X ⁽²⁾
FURR	X	X	O	O	X	X	X	X	O	O	O	X	X	X	O	O
SAWP	X	X	X ⁽³⁾	X ⁽²⁾	X	X	X	X	X ⁽³⁾	X ⁽²⁾	X	X	X	X	X ⁽³⁾	X ⁽²⁾
MYRR	X	X	O	O	O	X	X	O	O	O	O	O	X	X	O	O
PYPR	X	X	X ⁽³⁾	X ⁽²⁾	X	X	X	X	X ⁽³⁾	X ⁽²⁾	X	X	X	X	X ⁽³⁾	X ⁽²⁾

- Notes:
- Reports are composed of sections indicated by an X in the chart.
 - An X not accompanied by a footnote indicates that the section will be reported in both manual and automated versions.
 - At each echelon, the sections are grouped and presented by program element as well as by echelon total.
 - RPMA activities funded by non-appropriated funds are aggregated and reported at the same level as a program element.
 - In manual version of summary and consolidation reports: total by command echelon only; automated version: separate sections by program/program element and command total.
 - Provided in the automated capability only.
 - In the manual version, only installation totals (not program elements) are presented.
 - Marked-up MAFC SAWP Summary sheet (with appropriate narrative analysis of SAWP/FURR comparisons submitted by OCE to DA (DCSLOG)

A

Command Echelon																				
				MAFC																
				Dispatch																
MSC				Installation						MSC						MAFC				
D	F C	E L	P L	C	S	D	F C	E L	P L	C	S	D	F C	E L	P L	C	S	D	F C	E L
X ⁽³⁾	X ⁽²⁾	X	X	X	X	X ⁽³⁾	X ⁽²⁾	O	X	X	X	X ⁽³⁾	X ⁽²⁾	O	X	X	X	X ⁽³⁾	X ⁽²⁾	O
O	O	O	X	O	O	O	O	O	X	X	X	O	O	O	X	X	X	O	O	O
X ⁽³⁾	X ⁽²⁾	O	X	X	X	X ⁽³⁾	X ⁽²⁾	X	O	X	X	X ⁽³⁾	X ⁽²⁾	O	X	X	X	X ⁽³⁾	X ⁽²⁾	O
O	O	O	O	O	O	O	O	O	O	X	O	O	O	O	O	X	X	O	O	O
X ⁽³⁾	X ⁽²⁾	O	O	X	X	X ⁽³⁾	X ⁽²⁾	X	X	X	X	X ⁽³⁾	X ⁽²⁾	O	O	X	X	X ⁽³⁾	X ⁽²⁾	O

Legend: X - Section of report submitted.
O - Section of report not submitted.

Report Sections:

- C - Consolidation
- S - Summary
- D - Detail
- FC - Facility Components
- EL - Equipment List
- PL - Project List

B

				HQ DA																
				Receive																
MAFC				Installation						MSC						MAFC				
D	F	E	P	C	S	D	F	E	P	C	S	D	F	E	P	C	S	D	F	E
X ⁽³⁾	X ⁽²⁾	O	X	O	O	O	O	O	X	X	X	O	O	O	X	X	X	O	O	O
				X	X	X ⁽³⁾	X ⁽²⁾	O	X	X	X	X ⁽³⁾	X ⁽²⁾	O	X	X	X	X ⁽³⁾	X ⁽²⁾	O
O	O	O	X	O	O	O	O	O	X	X	X	O	O	O	X	X	X	O	O	O
				O	O	O	O	O	O	X	O	O	O	O	O	X	X	O	O	O
X ⁽³⁾	X ⁽²⁾	O	O	O	O	O	O	O	O	X	X	O	O	O	X	X	X ⁽⁴⁾	O	O	O
				X	X	X ⁽³⁾	X ⁽²⁾	X	O	X	X	X ⁽³⁾	X ⁽²⁾	O	X	X	X	X ⁽³⁾	X ⁽²⁾	O
O	O	O	O	O	O	O	O	O	O	X	O	O	O	O	O	X	X	O	O	O
				O	O	O	O	O	O	X	O	O	O	O	O	X	X	O	O	O
X ⁽³⁾	X ⁽²⁾	O	O	O	O	O	O	O	O	O	O	O	O	O	O	X	X	O	O	O
				X	X	X ⁽³⁾	X ⁽²⁾	X	X	X	X	X ⁽³⁾	X ⁽²⁾	O	O	X	X	X ⁽³⁾	X ⁽²⁾	O

e

HQ DA																	
Receive																	
Installation				MSC						MAFC							
	F C	E L	P L	C	S	D	F C	E L	P L	C	S	D	F C	E L	P L	Staff Agency	
(3)	O X ⁽²⁾	O O	X X	X X	X X	O X ⁽³⁾	O X ⁽²⁾	O O	X X	X X	X X	O X ⁽³⁾	O X ⁽²⁾	O O	X X	DA (DCSLOG) OCE	
	O O	O O	X O	X X	X O	O O	O O	O O	X O	X X	X X	O O	O O	O O	X O	DA (DCSLOG) OCE	
(3)	O X ⁽²⁾	O X	O O	X X	X X	O X ⁽³⁾	O X ⁽²⁾	O O	X X	X X	X ⁽⁴⁾ X	O X ⁽³⁾	O X ⁽²⁾	O O	O O	DA (DCSLOG) OCE	
	O O	O O	O O	X X	O O	O O	O O	O O	O O	X X	X X	O O	O O	O O	O O	DA (DCSLOG) OCE	
(3)	O X ⁽²⁾	O X	O X	O X	O X	O X ⁽³⁾	O X ⁽²⁾	O O	O O	X X	X X	O X ⁽³⁾	O X ⁽²⁾	O O	O O	DA (DCSLOG) OCE	

EXHIBIT III-3 RPMA FUNCTIONAL
REPORT COMPOSITION
BY COMMAND ECHELON

D

[Deputy Chief of Staff for Logistics (DCSLOG)] and the Office of the Chief of Engineers (OCE).

For example, the chart shows that URR's prepared at installation level are composed of six sections: consolidations, summaries, details, components, equipment lists, and project lists. The URR's prepared at MSC contain the same sections; in addition, installation level copies of all six report sections are forwarded to MAFC. The URR's prepared at MAFC contain only five sections, since equipment lists are not sent to HQ DA. At HQ DA, DCSLOG gets copies of the consolidations, summaries, and project lists made up by MAFC's; and copies of the same sections made up by MSC's and installations.

Since an appreciable portion of RPMA work is accomplished with non-appropriated funds (NAF), installations and command echelons aggregate this work and report it in the same manner they report program elements.

3. Method of Presenting RPMA System Design

The RPMA system design is presented as a series of individual flow charts for each of the five management functions (PPBER). Each management function is presented in sequence, first in terms of the present system, and then in terms of the proposed RPMA system. Thus, a ready comparative analysis of old and new can be easily accomplished. The presentation of each area includes the guidance, or binding, that holds all of the management areas together in the PPBER cycle.

As a guide to the integration and understanding of the separate functional flow charts, a sequence-of-events comparison of the two systems (present and proposed) is contained in Exhibit III-4. The continuous snake-like line represents the sequential progress of events through both the PPBER cycle and the command echelons. The vertical axis indicates the five management functions, with guidance the link between the five functions; the horizontal axis shows the four command echelons (I-MSC-MAFC-DA). The left and right vertical columns indicate exhibits which present, for particular RPMA management functions, the activities from installation through MSC and MAFC to HQ DA. The right column (proposed system) clearly indicates the achievement of two RPMA design objectives: (1) the determination of RPMA requirements in the planning and programming

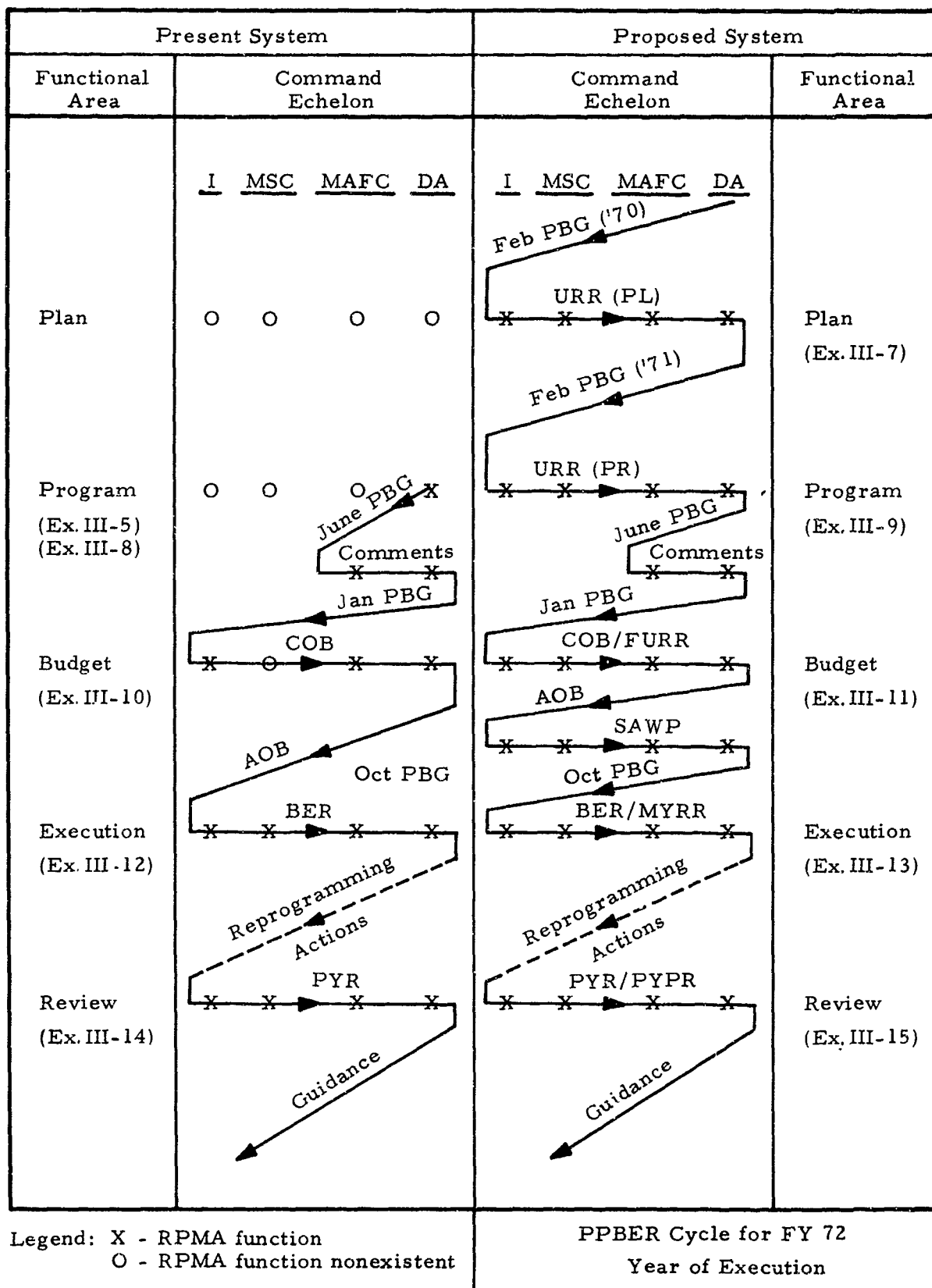


EXHIBIT III-4 COMPARISON OF PRESENT AND PROPOSED RPMA FUNCTIONAL SYSTEM

management functions, and (2) the strengthening of the functional channel and the shifting of detailed RPMA data from the financial channel to the functional channel by means of the five new reports (URR, FURR, SAWP, MYRR, PYPR).

Subsection III.B presents the detailed functional flow charts and explanations for the notional RPMA system. The notional system is designed to handle those activities at Class I installations that are contained in the operations Army (OA) and operations maintenance Army (OMA) funding actions of the budgetary cycle. The variations from the notional system caused by differences in organizational capability in facilities management in the research, development, test, and evaluation (RDTE), Army Industrial Fund (AIF), and other areas will be presented on an exception-to-the-rule basis.

B. RPMA Management Functions - Present and Proposed

1. General

The RPMA functional design is composed of guidance and five functions (planning, programming, budgeting, execution, and review) which complete the management cycle. This subsection defines each of the five management functions, addresses the subject of guidance, and describes each function, first as it exists today, and then as it is proposed in this document. Differences between present and proposed procedures are highlighted.

2. Definition of RPMA Management Functions

For the purposes of this document, the five RPMA management functions are defined as follows:

- Planning is the early identification of RPMA requirements [in terms of: (1) operation of utilities, (2) maintenance of real property, (3) minor construction, and (4) other engineering services] to support facilities used by mission activities identified in programs and program elements of the FYDP. RPMA planning includes those RPMA actions that take place prior to the RPMA programming function and that contribute to OSD and DA guidance for develop-

ment of programs that finance RPMA activities. The planning function addresses the target year and years succeeding the target year.

- Programming is the orderly development of RPMA requirements that will be financed in accordance with established priorities and policy guidance from higher headquarters to support facilities used by mission activities identified in programs and program elements of the FYDP. RPMA programming includes those actions that stem from RPMA planning and that contribute to OSD and DA guidance for developing budgets that finance RPMA activities. The RPMA programming function bridges the target year and the budget year.
- Budgeting is the identification and allocation of funds for the execution of RPMA in accordance with policies of Congress, appropriate Federal agencies, OSD, HQ DA, and the echelons below HQ DA. Funds to support facilities are budgeted from programs and program elements in the FYDP that finance mission activities. RPMA budgeting includes those actions that stem from RPMA programming and that finance the execution of RPMA categories. The budgeting function addresses the budget year.
- Execution is the process of bringing authorized and funded RPMA category work to fruition in order to provide the best support for FYDP mission programs and facilities with funds budgeted for this purpose. Execution stems directly from budgeting and includes the day-to-day planning of work execution, namely work order estimating and the scheduling of craftsmen, materials, and equipment to perform RPMA categories. The RPMA execution function addresses the current year and those reprogramming actions required to accommodate unforeseen requirements.
- Review is the process of recording, reporting, and evaluating the physical and financial progress of RPMA work. It includes analysis of work accomplished versus work required, work

accomplished versus work programmed, and work accomplished versus work for which funds were budgeted. This function determines the degree to which mission support standards and technical efficiency standards were actually met. The review function stems from the execution function and addresses the prior year.

3. Guidance

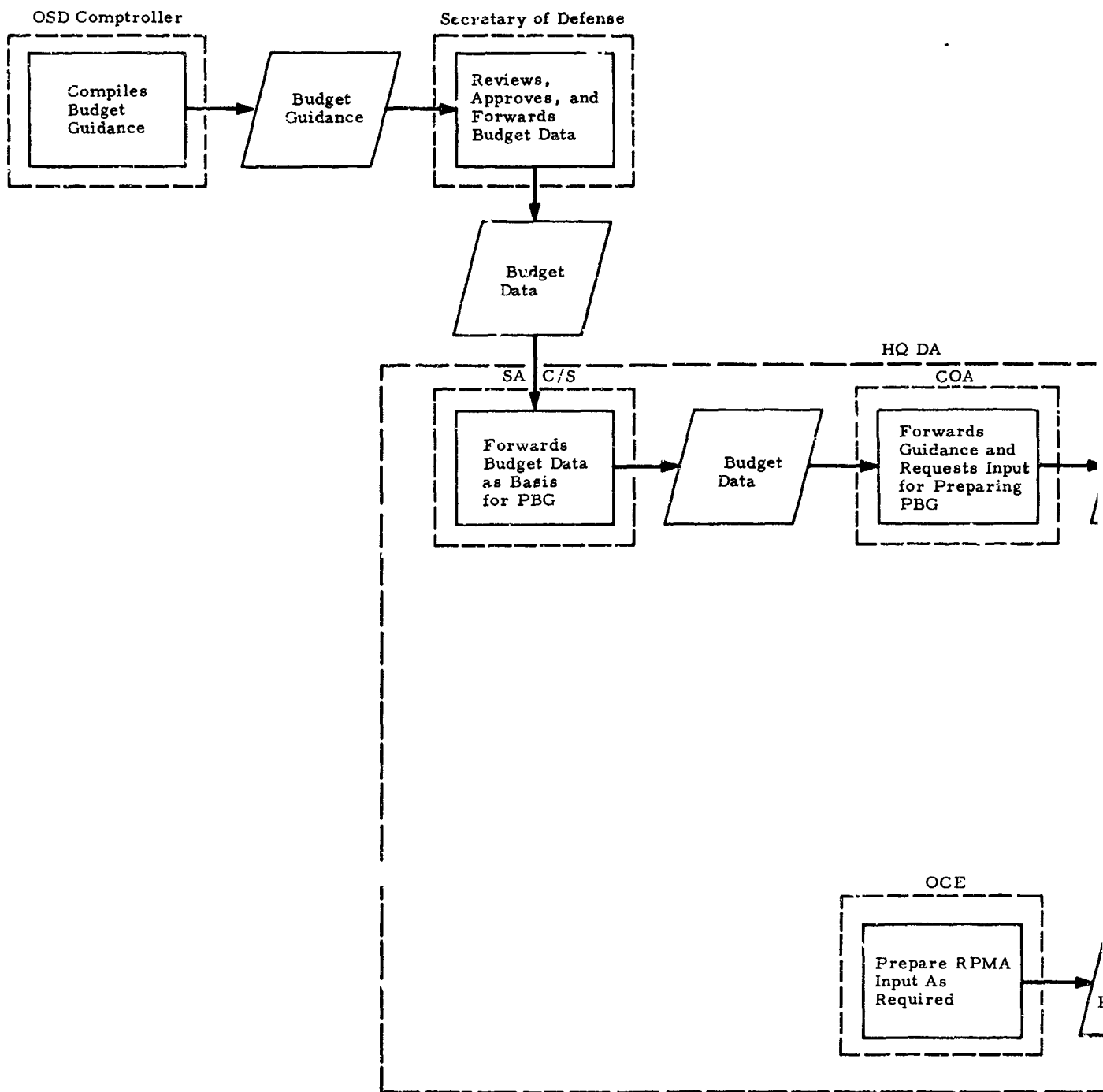
As shown in Exhibit III-5, present RPMA management guidance is disseminated through financial channels in the form of program budget guidance (PBG) and through functional channels in the form of DA pamphlets, circulars, regulations, technical manuals, and informal post engineer news letters published by OCE. In the proposed system, shown in Exhibit III-6, much of the guidance now contained in financial PBG will be shifted to the functional channel. For example, guidance on establishment of RPMA priorities and standards of maintenance will be moved from the financial to the functional channel.

OCE/Real Property Maintenance Activities Office (RPMAO) will be responsible for providing guidance to MAFC's on preparation of the five new RPMA management reports. Some of this guidance will be of a policy nature; although it will probably not change much from year to year, OCE/RPMAO will republish this guidance annually to ensure that it is kept up to date. Some of this guidance will apply to specific situations, to specific RPMA functional categories, and to specific RPMA functional reports. RPMAO/OCE, MAFC's, and MSC's will generate this specific guidance as necessary. The generation of specific guidance for establishing and validating RPMA requirements and priorities is treated in detail in Sections IV and V.

4. The Planning Function

a. Present Planning Function

Under the definitions of functions presented earlier, no planning function for RPMA work now takes place at MSC or MAFC. Although the installation prepares a long-range work plan (LRWP) for RPMA,



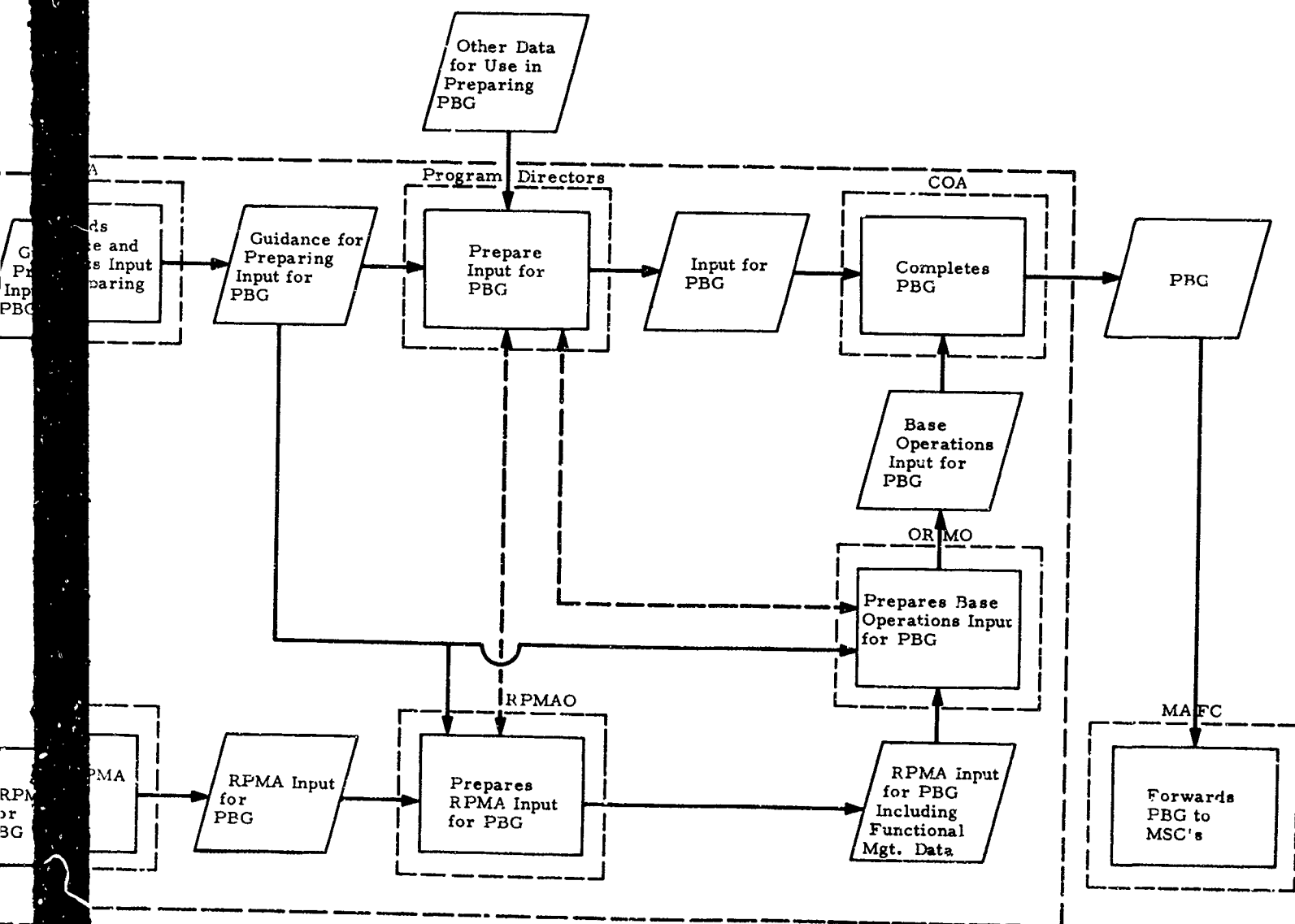
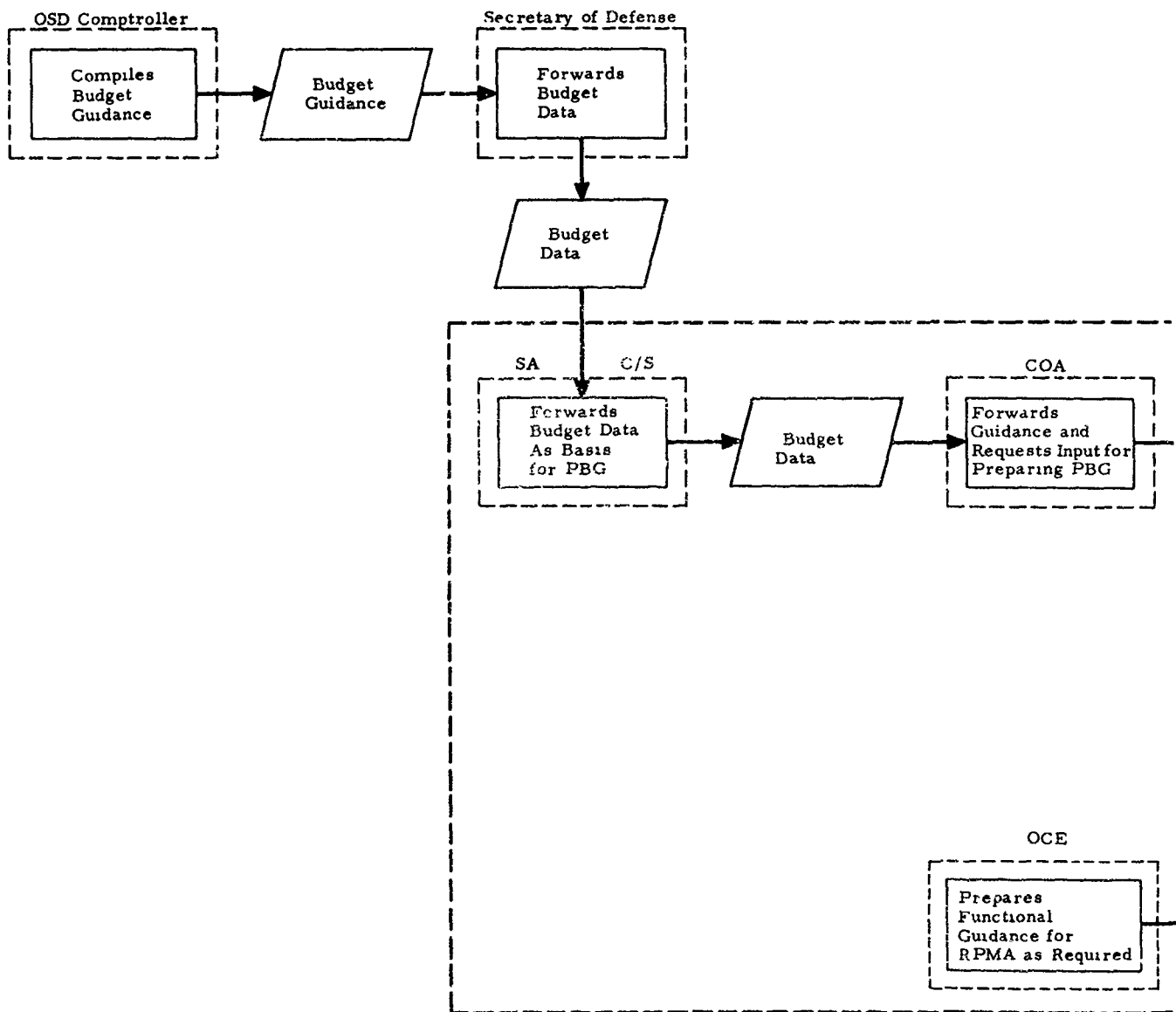


EXHIBIT IV-5 PRESENT - RPMA IN PREPARATION OF PBG

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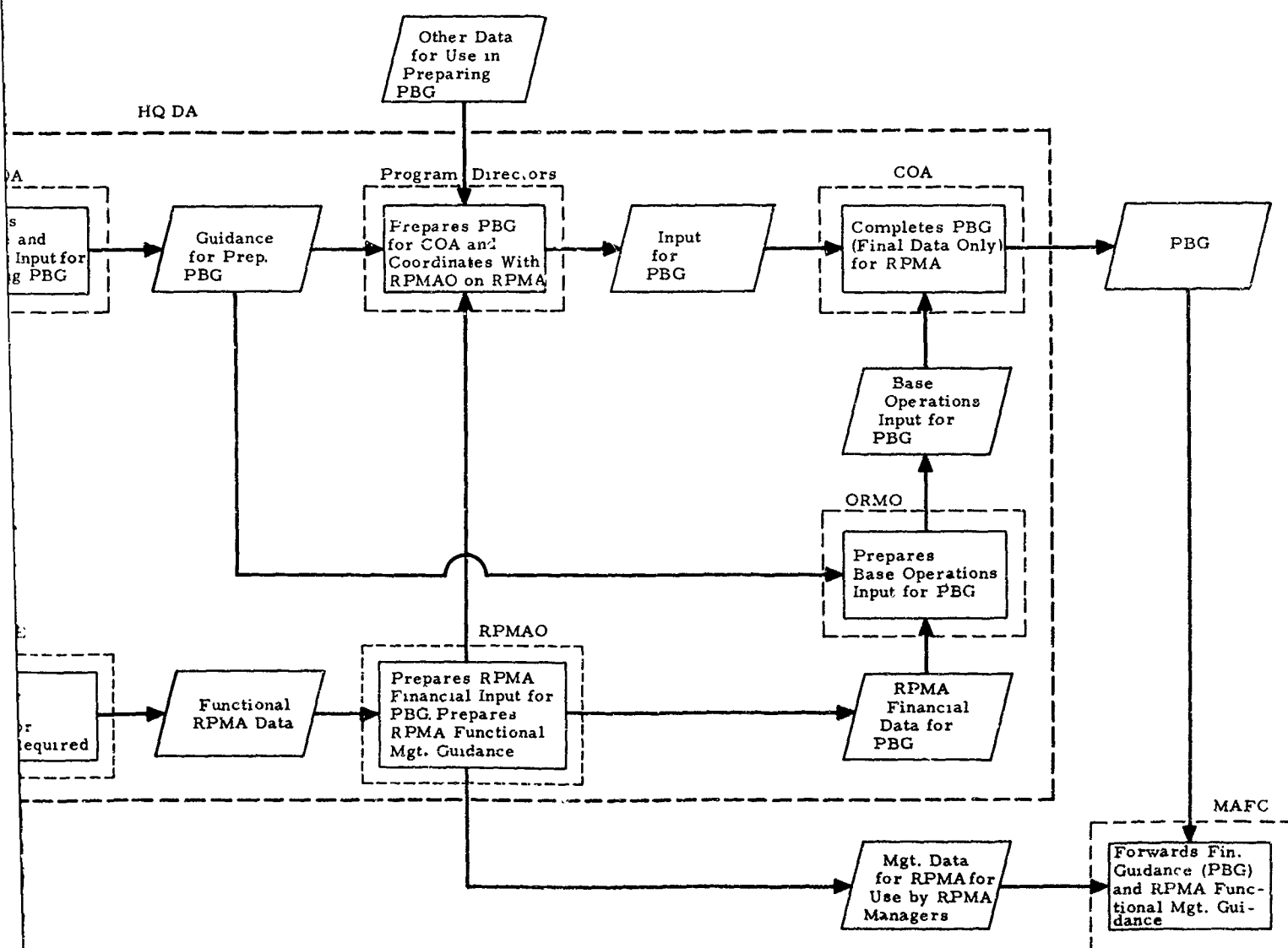


EXHIBIT III-6 PROPOSED - RPMA
IN PREPARATION PBG

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which covers a 5-year period, this document has no effect on the development of OSD and DA of guidance for FYDP programs that finance RPMA activities.

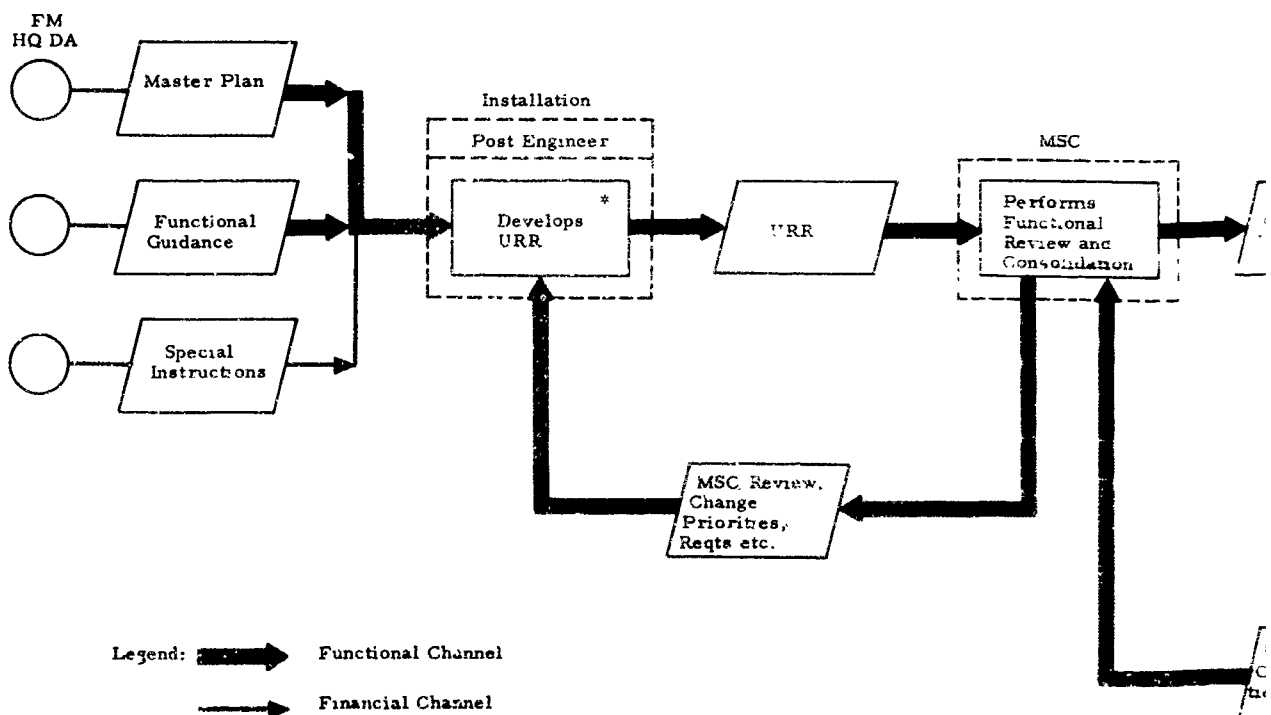
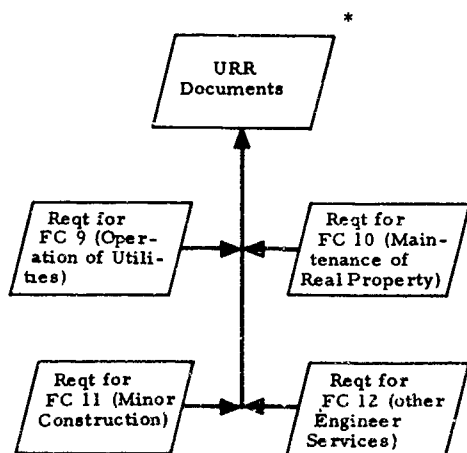
The LRWP is a one-page summary of installation dollar requirements for RPMA personnel, supplies, utilities, and other services; contract projects; and equipment. It is backed up only by a list of required projects and equipment acquisitions. It does not relate dollar requirements to users or missions supported; it does not show what work is to be performed with the dollars required; it does not relate dollars required to facilities supported; and it is not based on a systematic procedure for forecasting requirements. Furthermore, it does not leave the installation. However, it does provide a base for correction of these deficiencies and development of a systematic procedure that will assist DA and OSD in planning and programming for RPMA requirements.

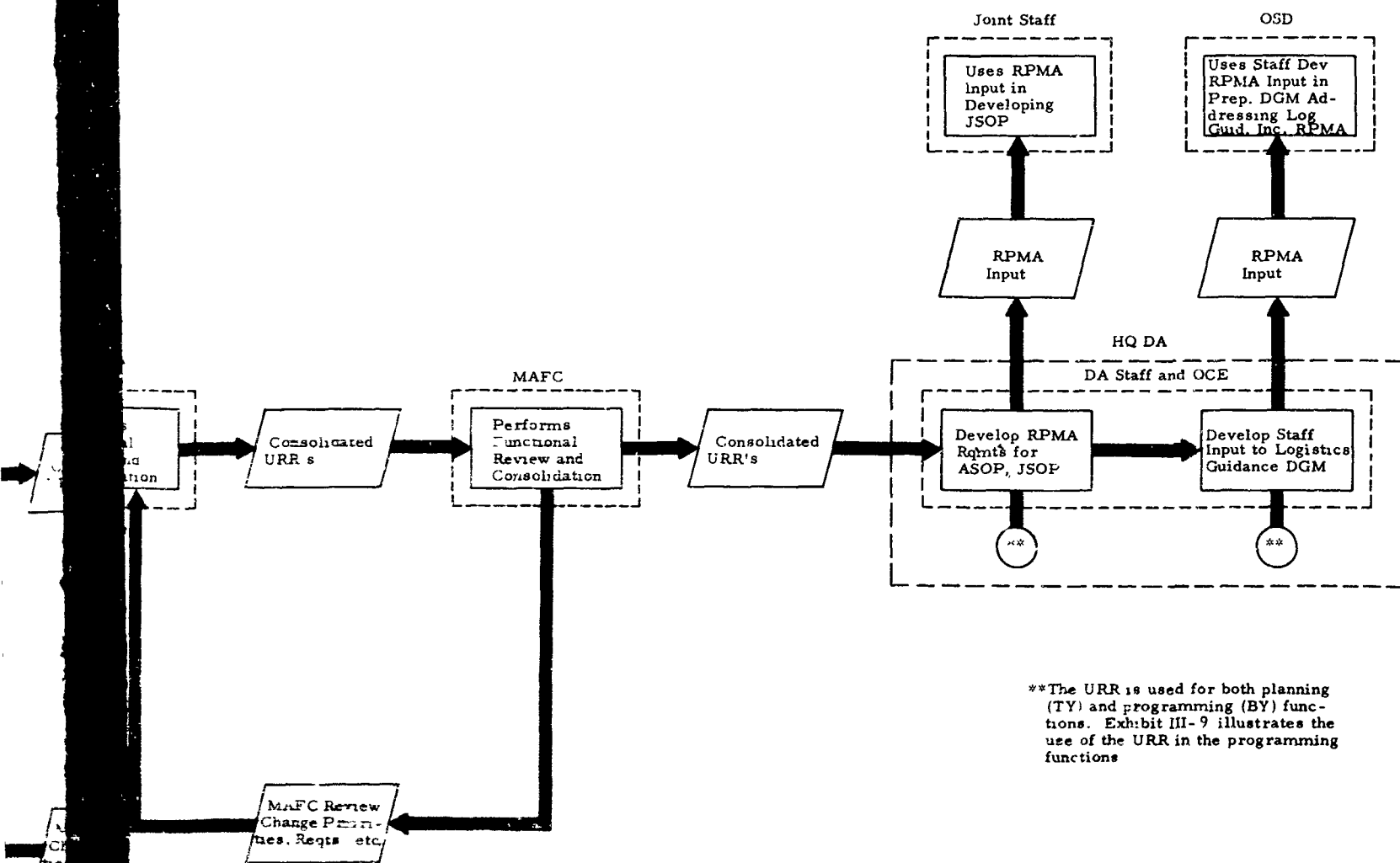
At present, Army force and resource planning efforts are carried out through both joint and unilateral channels. As explained in PRC R-1209, Volume II, Part 1, RPMA Management Function Analysis, no means presently exist whereby RPMA requirements can be considered in the Joint Chiefs of Staff (JCS) and OSD Planning Process, yet the data that are considered, do, in fact, have impact on RPMA.

The analysis contained in PRC R-1209, Volume II, Part 1, has established a need within the planning phase of the PPBER cycle for a technique to present RPMA requirements in a way and at a time or times in this cycle that such requirements would be considered before any planning guidance documents, such as the Defense Guidance Memorandum (DGM) and Draft Presidential Memorandum (DPM) are published.

b. Proposed Planning Function

Exhibit III-7 sets forth the technique proposed in the RPMA system design for influencing the content of OSD annual logistics guidance.





**The URR is used for both planning (TY) and programming (BY) functions. Exhibit III-9 illustrates the use of the URR in the programming functions

EXHIBIT III-7 PROPOSED PLANNING
FUNCTION INSTL/MSC/MAFC/HQDA

B

budget year (BY). At this time, the post engineer will be able to make a reasonably accurate forecast of the work he will be able to accomplish with resources available for the current fiscal year and with resources forecast for the coming fiscal year (FY). With this knowledge, he will forecast his "unconstrained requirements" for the following FY.

The URR will consist of a summary sheet followed by individual sections for operation of utilities, maintenance of real property, minor construction, and other engineering support. The URR will also briefly address the remaining 4 years of the FYDP, 3 of which are now covered in the LRWP.

The URR, with its summary sheet and backup sheets for each functional category, will be forwarded to the MSC for its consideration. The MSC, with its overview of Army area activities and its access to information that may not have reached installation, will exercise its managerial prerogative of reconsidering the unconstrained requirements. It will review the work of the installation for correctness of application of standards, basis for workload computations, and recognition of recent mission changes. Technical experts at the MSC will examine the URR's from each installation for validity and accuracy of estimates, as well as the possible reordering of priorities. Program element directors represented at the MSC, with their knowledge of possible changes in missions, will add or delete affected items and recompute workloads; and with their knowledge of the relative importance of their missions among installations, they will also examine the URR's for possible re-ordering of priorities. The MSC will make its amendments in consultation with installations and will consolidate the URR's for the entire MSC.

The URR summary sheets for each installation will be consolidated by program element into a single URR summary sheet. The backup sheets for each functional category will be similarly consolidated.

From the MSC, the URR will be forwarded to the MAFC, where it will be examined, reconsidered, verified, and modified; will have

priorities reordered; and will be consolidated for all MSC's. MAFC's will forward URR's to HQ DA, where they will be used by OCE and the RPMAO in DCSLOG.

RPMA planners in the RPMAO will then use the data in the URR for making an unconstrained requirements estimate (URE) for the year beyond the year actually addressed in the URR. In this way, the projection of RPMA requirements will address the same year as that being addressed by the Joint Strategic Objectives Plan (JSOP), which is being prepared during this same period, and, more important, the same target year addressed by the DGM on logistics guidance. The URE will be used for midrange planning actions and as input to the Army Strategic Objectives Plan (ASOP). Through that plan the URE will be carried into the JSOP as the Army's input to the joint plan. Thus the Army will adopt an active aggressive posture in attempting to influence the content of the DGM, and, even after the DGM is published, the Army will be armed with a soundly reasoned basis for rapid response during the "for comment" period.

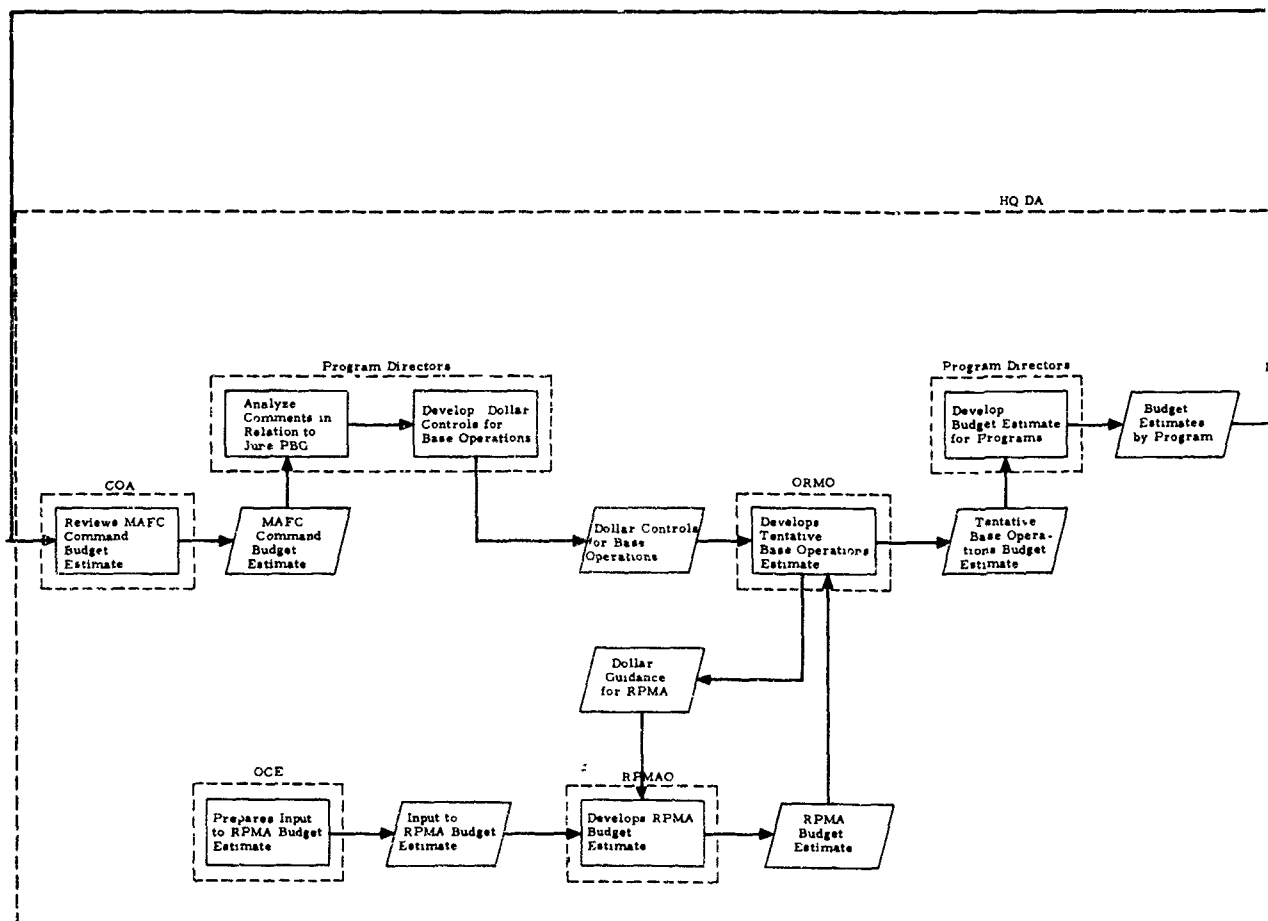
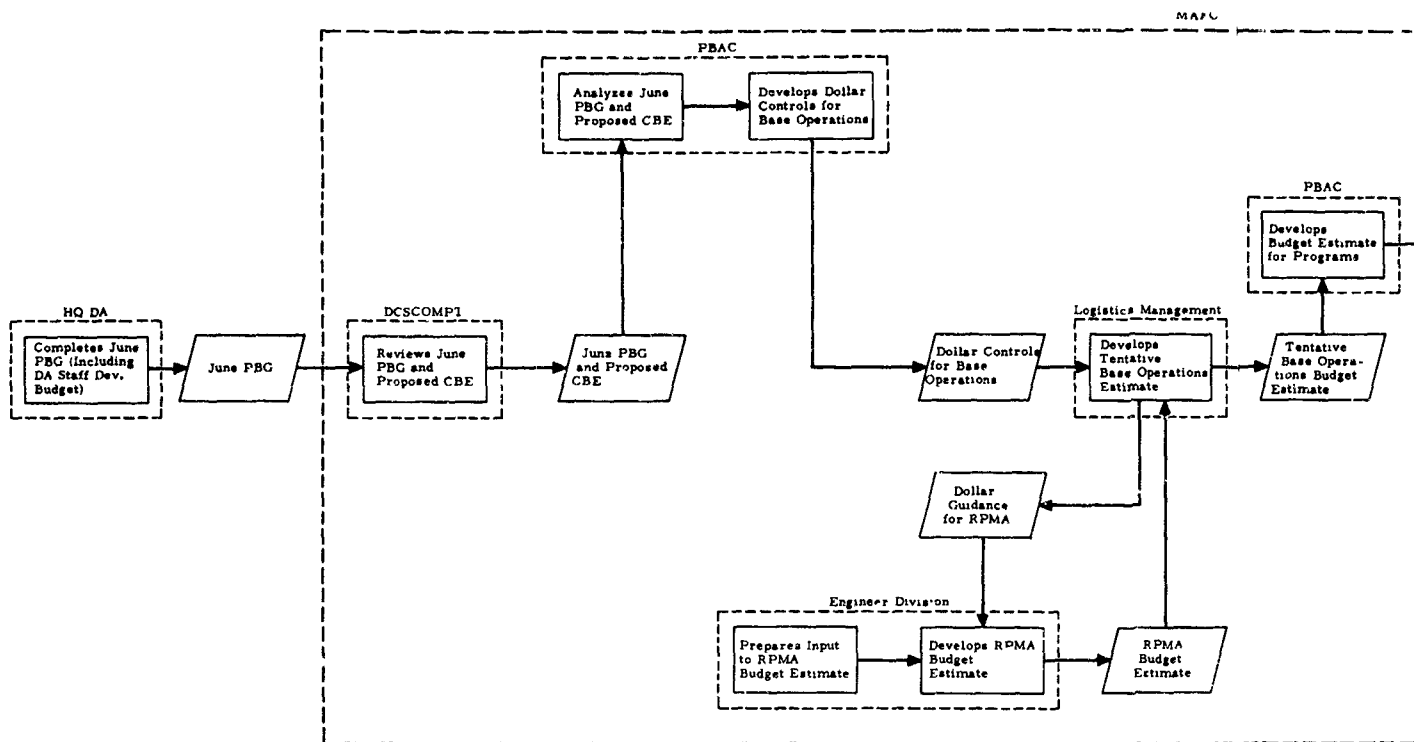
5. The Programming Function

a. Present Programming Function

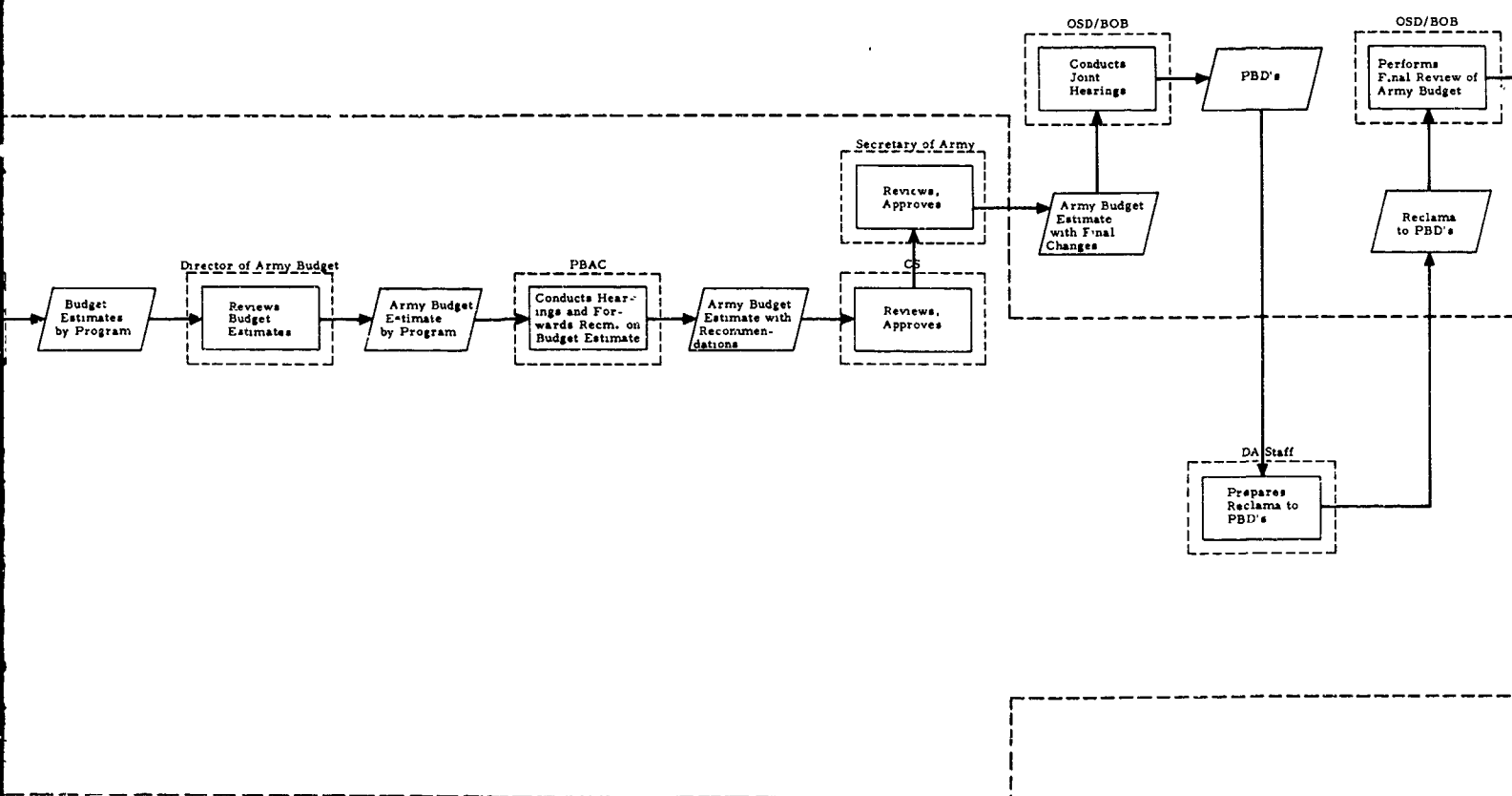
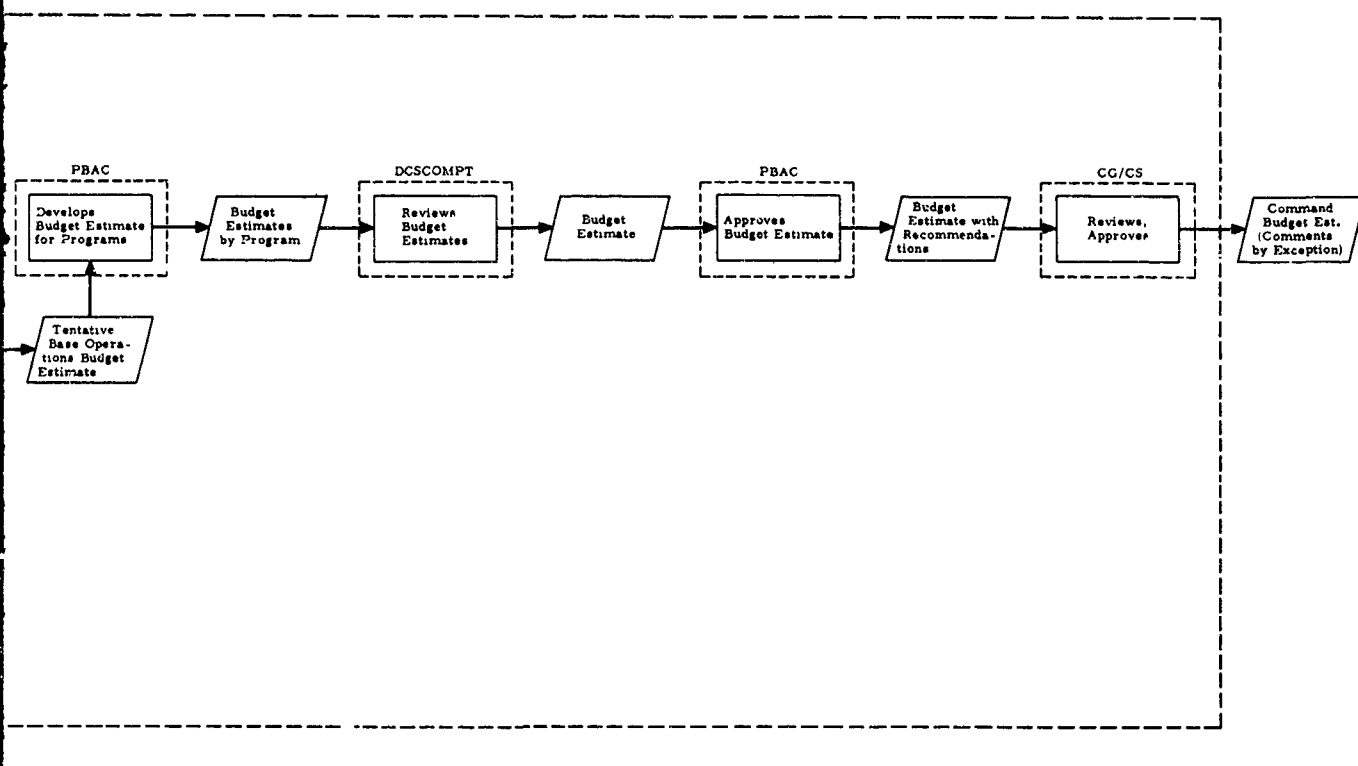
The present programming function is illustrated in Exhibit III-8. However, under the definitions of functions presented earlier, no real programming function for RPMA exists at MSC or MAFC. As in the case of the planning function, the LRWP for RPMA remains at the installation and has no effect on the development by OSD and DA of guidance for FYDP programs that finance RPMA activities. Although the Army has responded to OSD requests for RPMA programming information in the form of the maintenance and operation of real property (MORP) report, this report has not provided valid, substantiated information required by OSD. A need exists, therefore, to provide OSD with valid RPMA requirements during the programming phase of the PPBER cycle.

b. Proposed Programming Function

Exhibit III-9 sets forth the technique proposed in the RPMA system design for fulfilling the programming function at each



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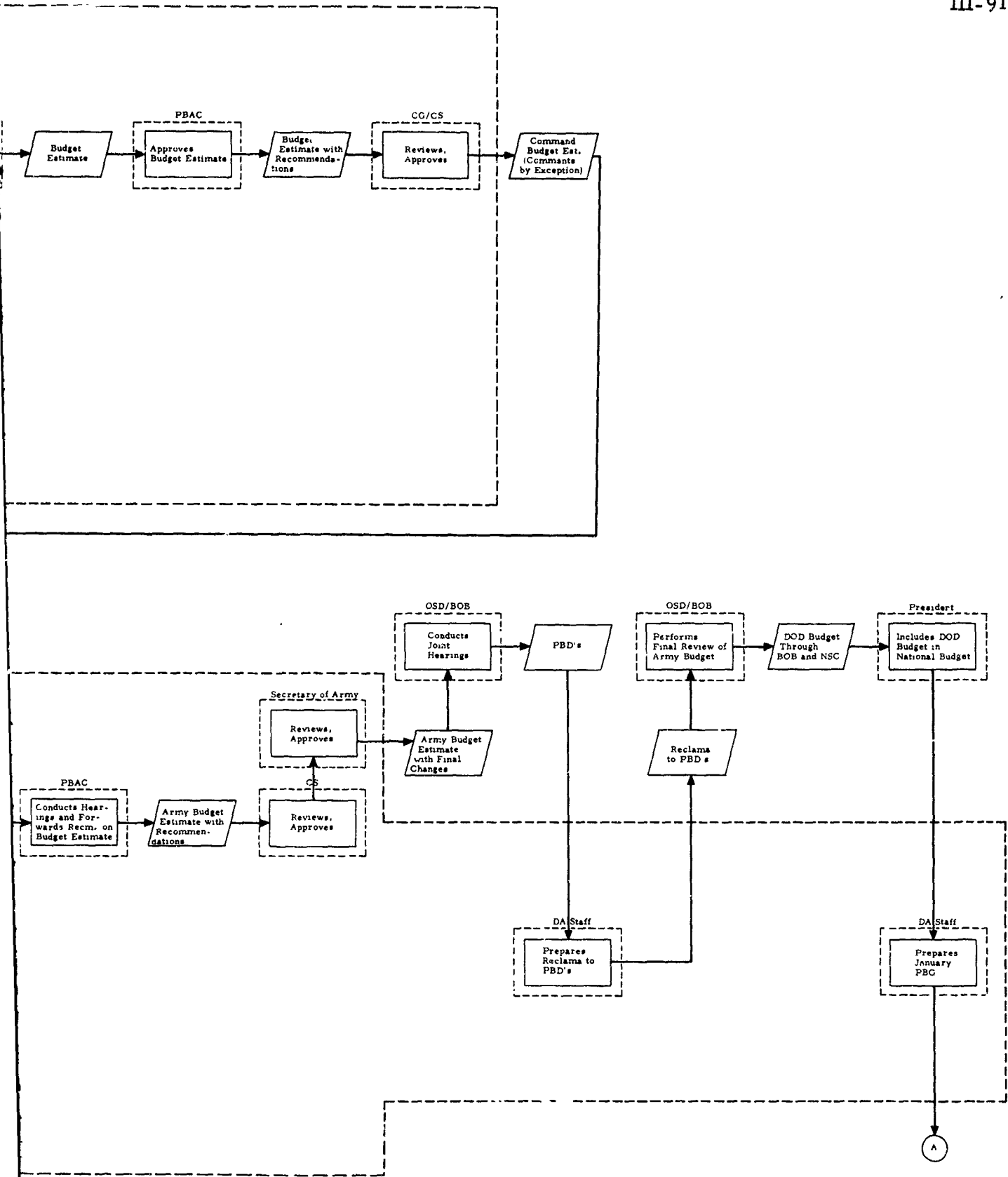
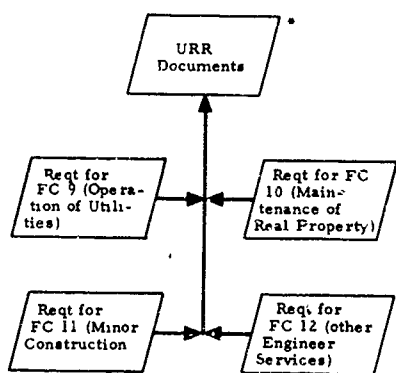
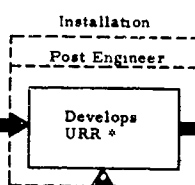
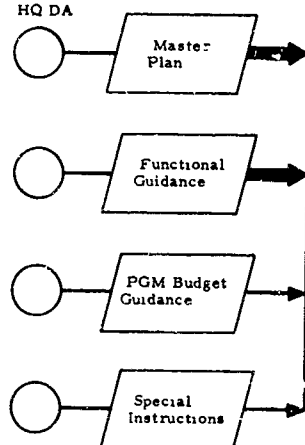


EXHIBIT III-8 PRESENT PROGRAMMING FUNCTION INSTL/MSC/MAFC/HQ DA



FM
HQ DA



MSC

Performs
Functional
Review and
Consolidation

Consolidated
URR's

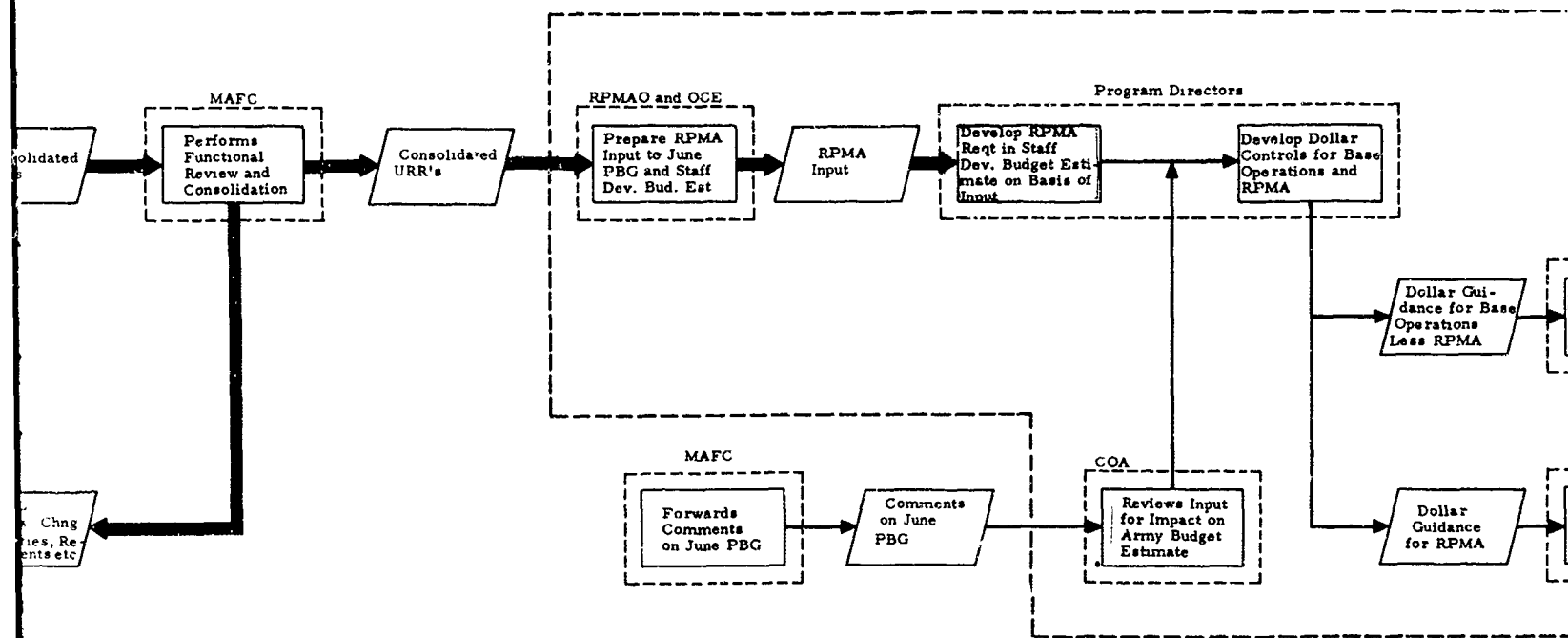
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MSC Review
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MAFC.
Review, Chng
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Legend. Financial Channel
 Functional Channel

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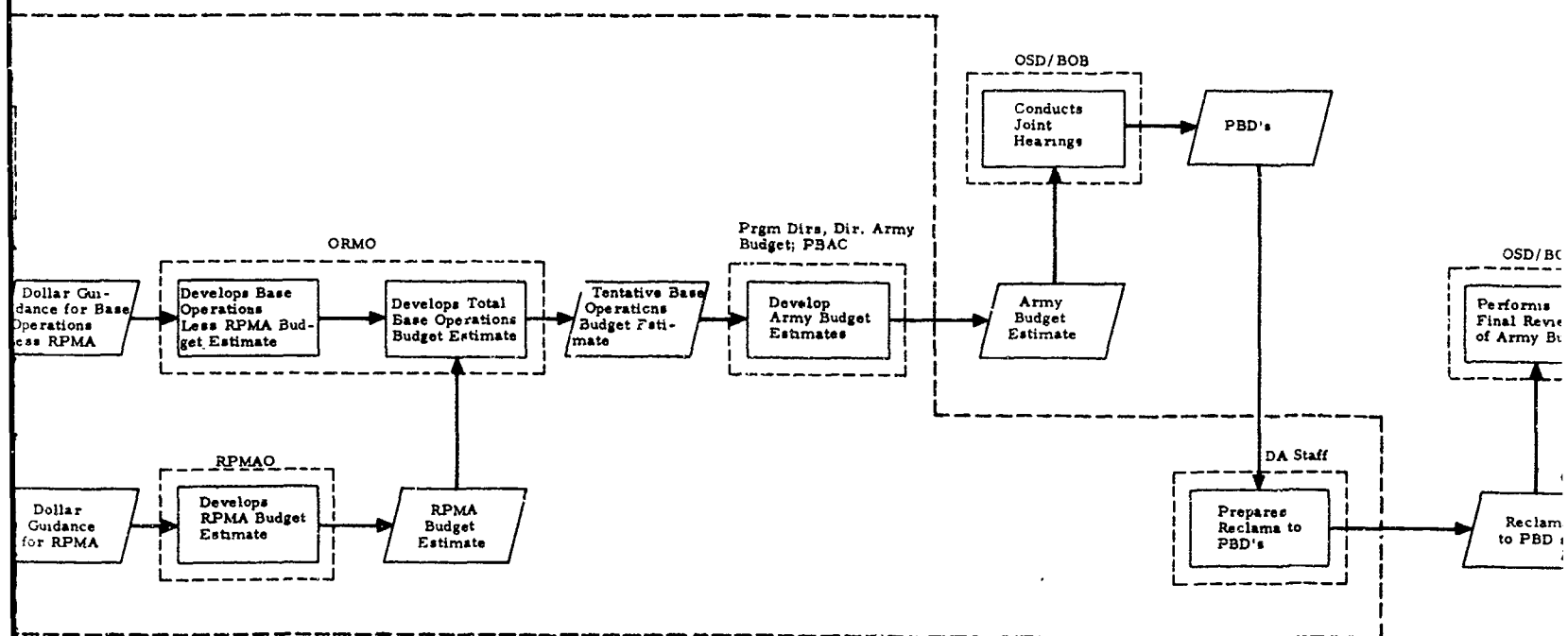


EXHIBIT
MING FU
HQ DA

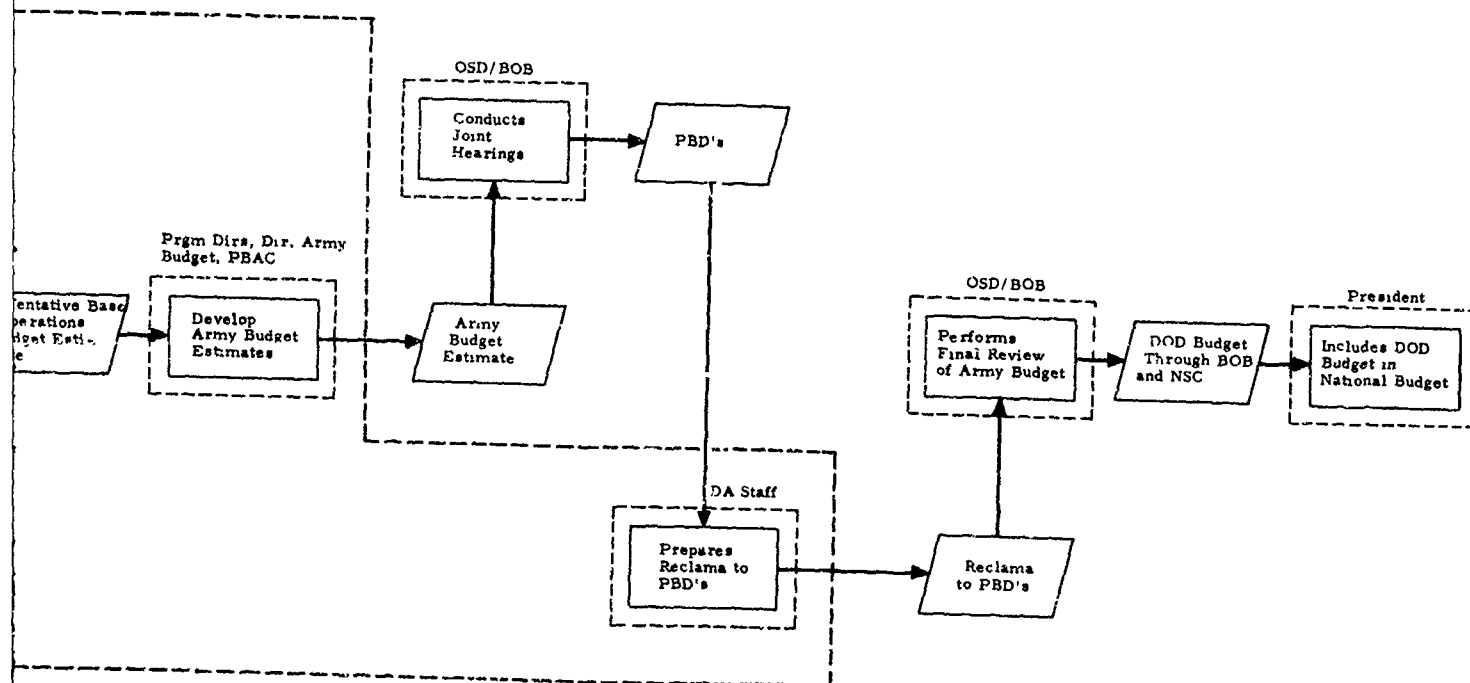


EXHIBIT III-9 PROPOSED PROGRAM-
MING FUNCTION INSTL/MSD/MAFC/
HQ DA

echelon. Note that the planning and programming functions at installation, MSC, and MAFC are identical. Only at the DA level, where the URR is used by Army planners to produce URE, are the procedures different.

For the programming function, the URR will be used by RPMAO/OCE as the basis for preparation of reports and spread sheets that will be used to influence program directors in developing the staff-developed Army budget estimate. The URR will also be used for developing specific RPMA guidance for the fiscal year starting 13 months hence and for measuring the effectiveness of the extrapolation of 1-year projection of unconstrained requirements made in the previous URE.

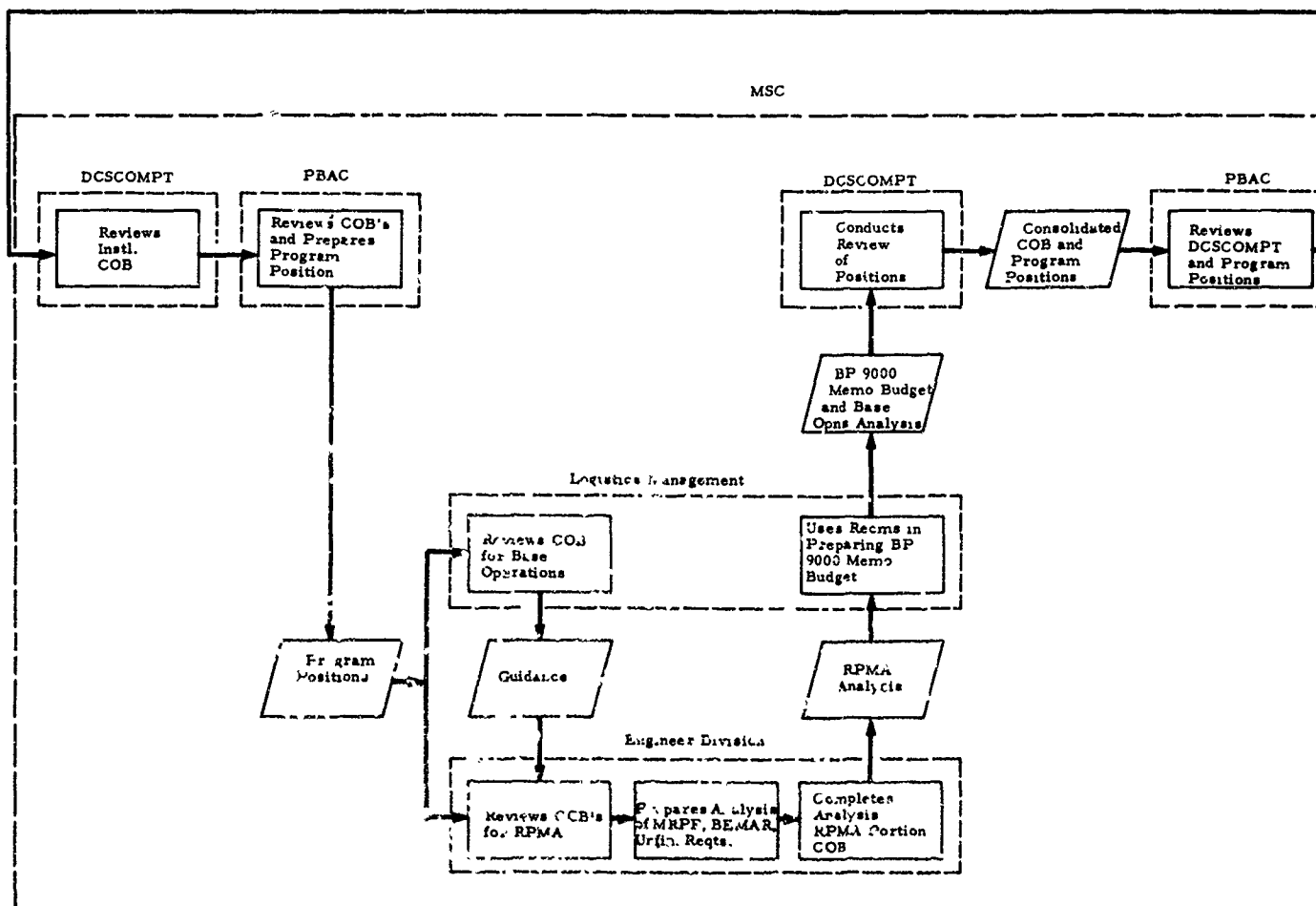
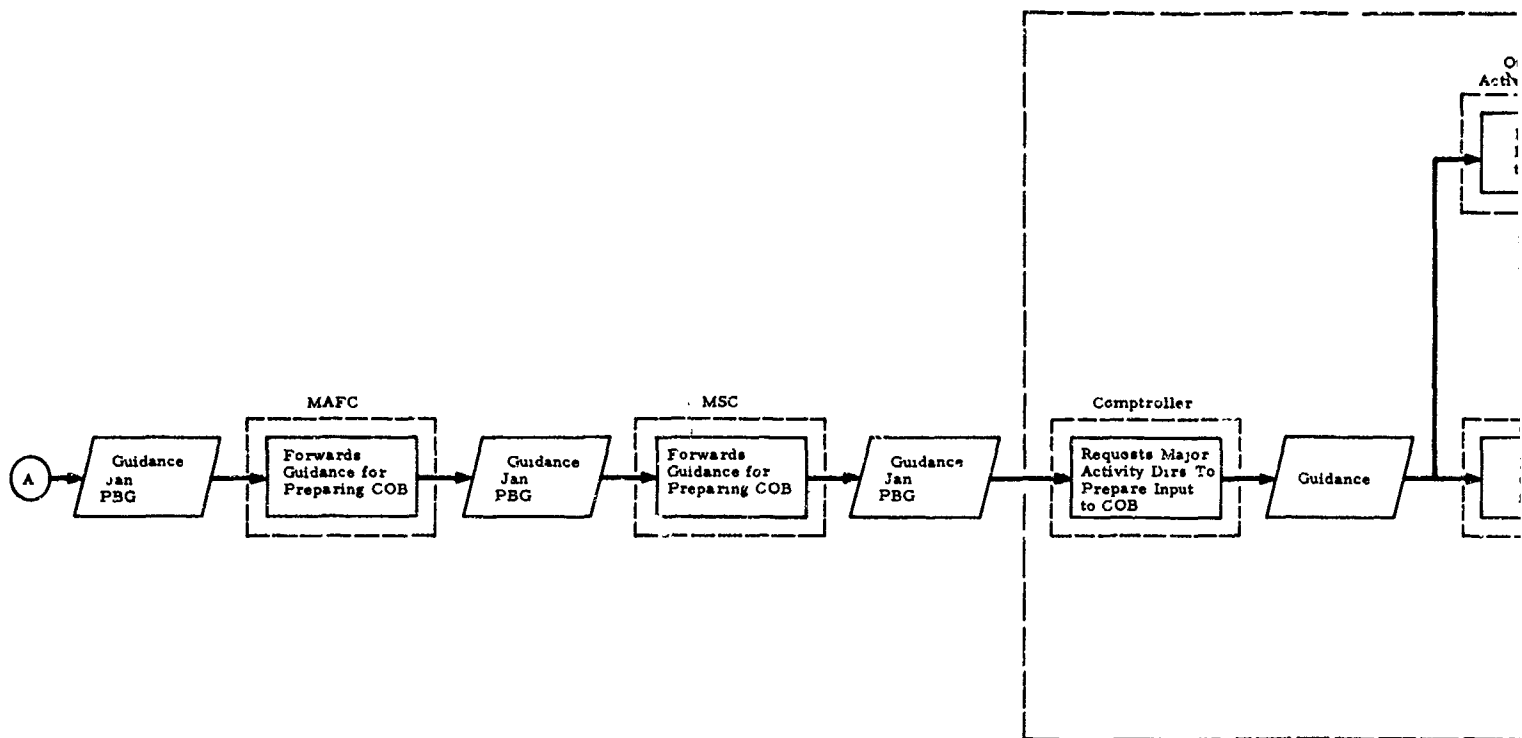
Under the proposed programming procedures at DA, the RPMAO will take a more direct role by recommending RPMA funding levels to program directors, and, in return, receiving dollar guidance decisions directly from them rather than from Operating Resource Management Office (ORMO).

6. The Budgeting Function

a. Present Budgeting Function

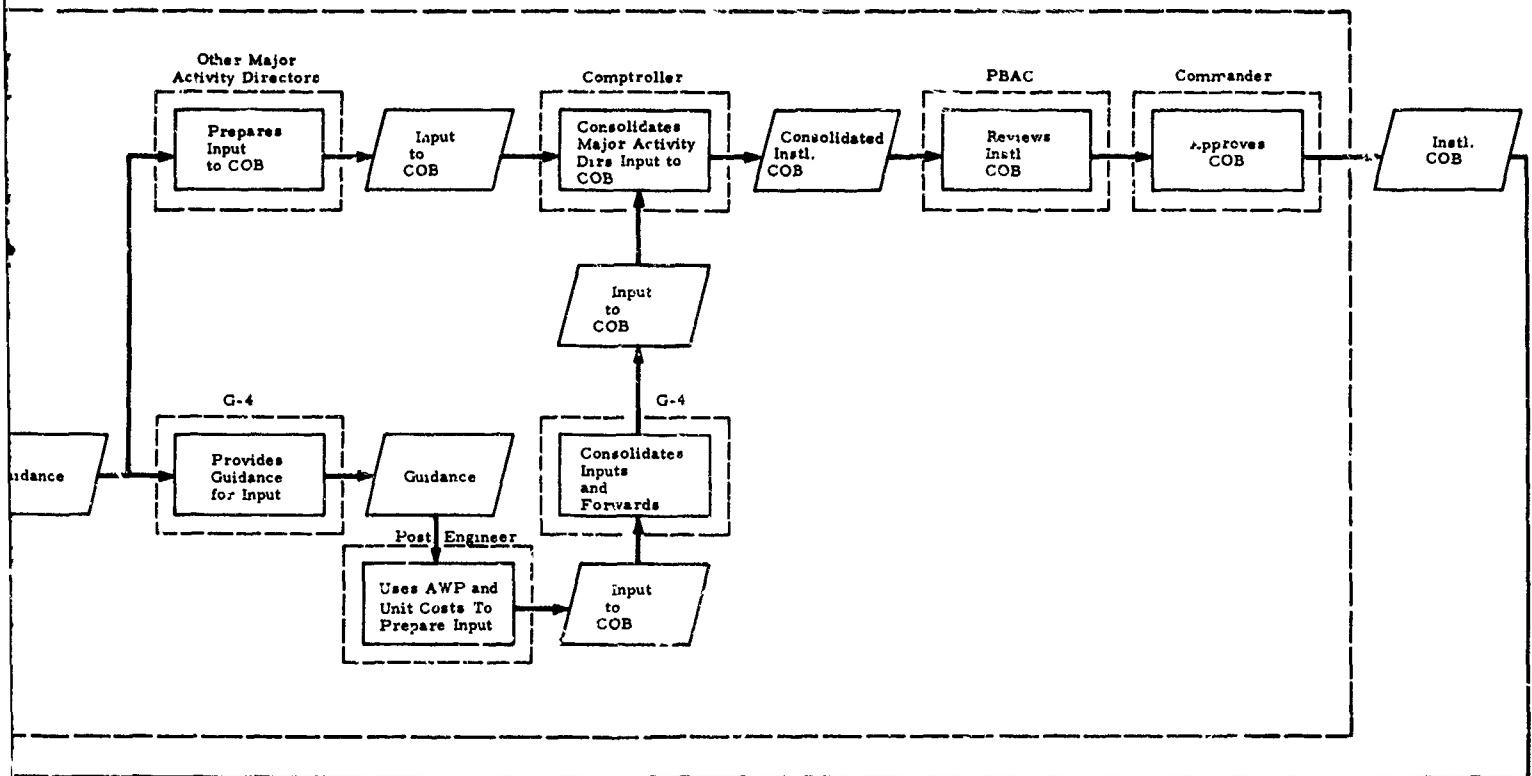
The present budgeting function for RPMA, which includes preparation of the COB and the AOB, is illustrated in Exhibit III-10. As a first step in this process, the post engineer organization prepares an input to the COB after receiving guidance in the January PBG. The input is sent to the installation comptroller, who prepares the installation COB and forwards it through the MSC and MAFC, where it is consolidated and forwarded to HQ DA.

At present, the budgeting function at the installation also includes the preparation of the Annual Work Plan (AWP). Unit inputs received from shops are compiled by the work coordinating office with the assistance of the utilities division chief, the buildings and grounds division chief, and the engineering plans and real property office. The plan includes unit and summary analyses of resource requirements and work by installation forces, as well as annexes for contracts and equipment acquisition, both listed in priority order. Priority listing for larger

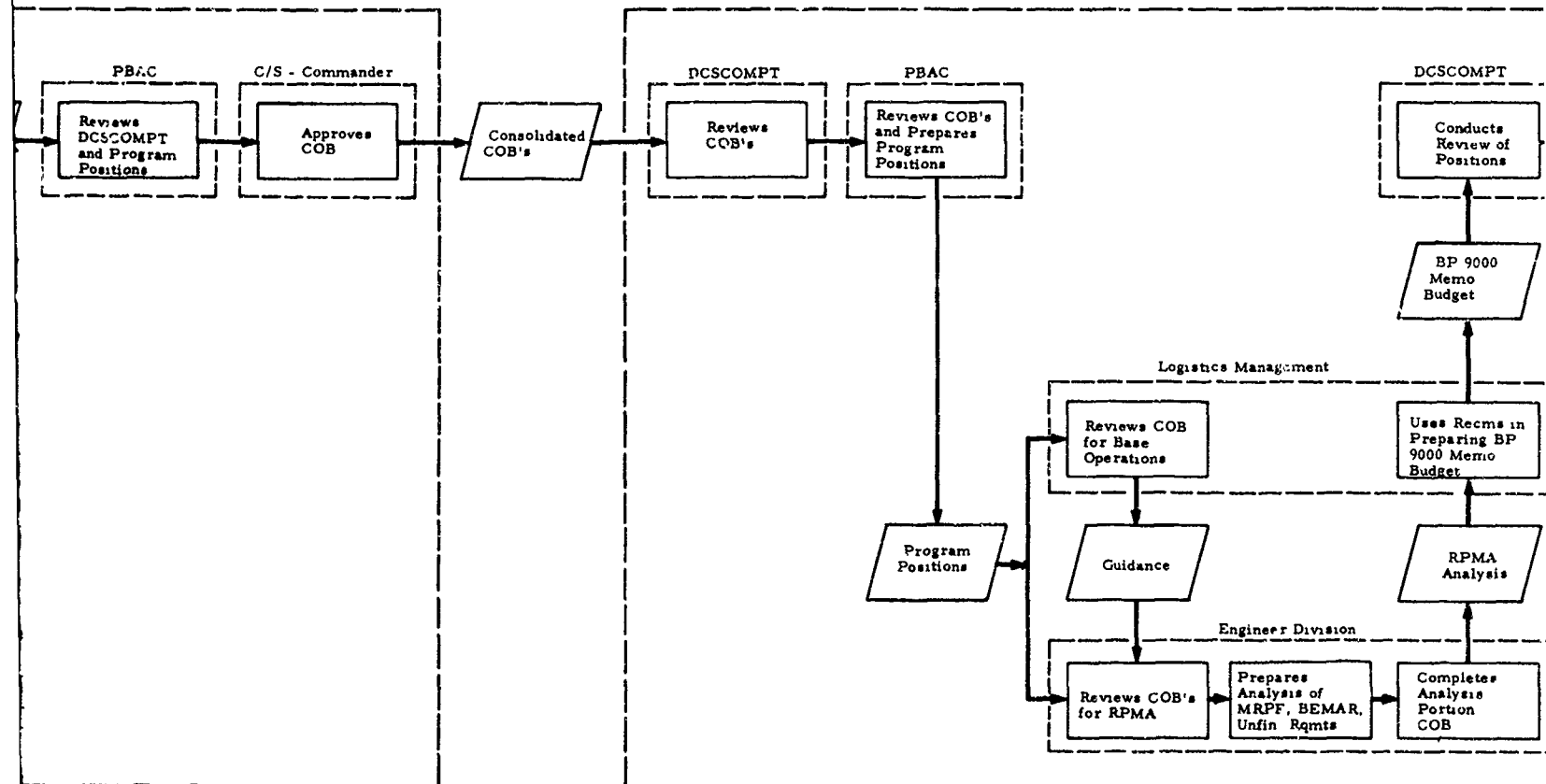


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Installation



MAFC



B

PRC R-1209
III-97

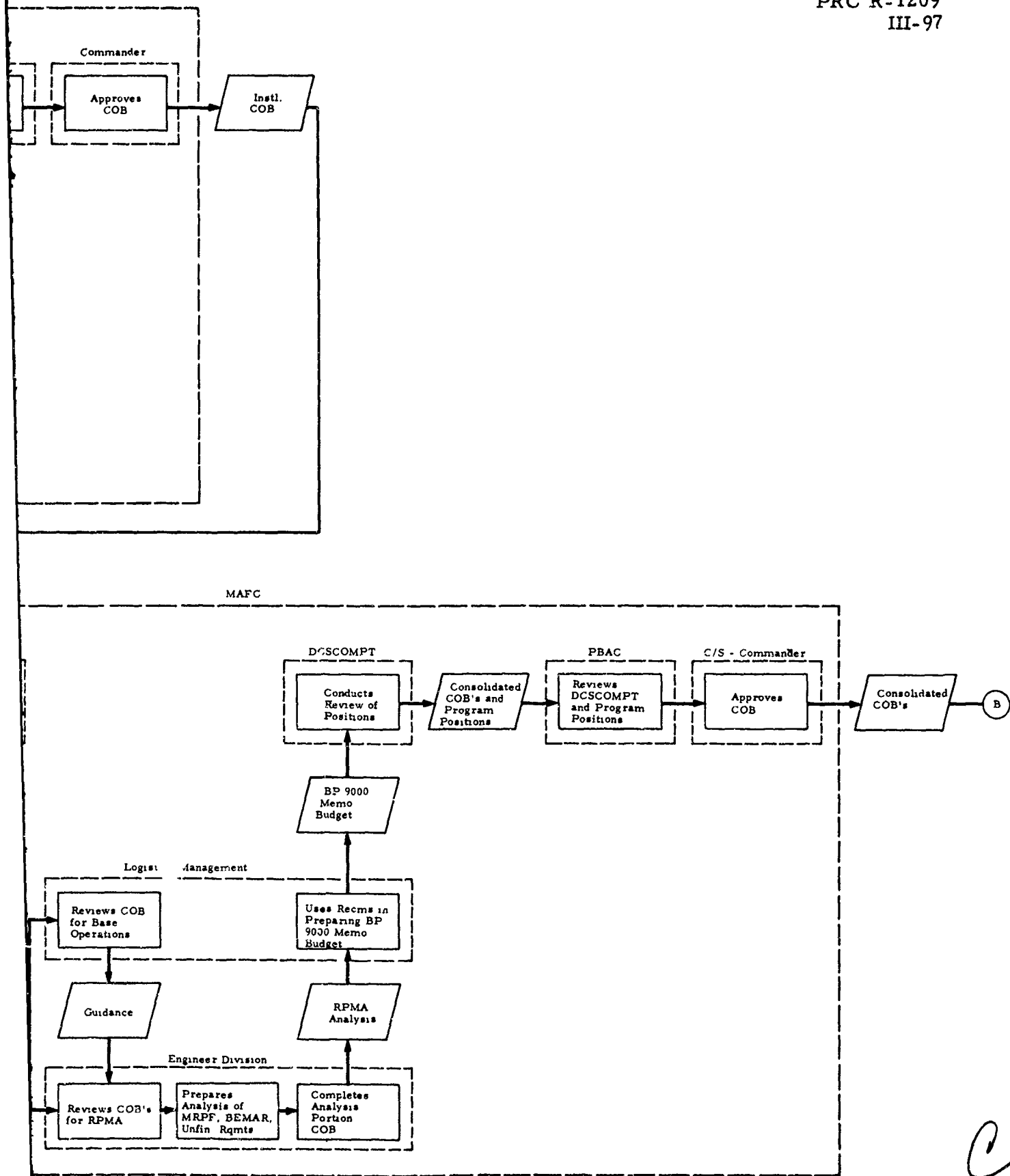
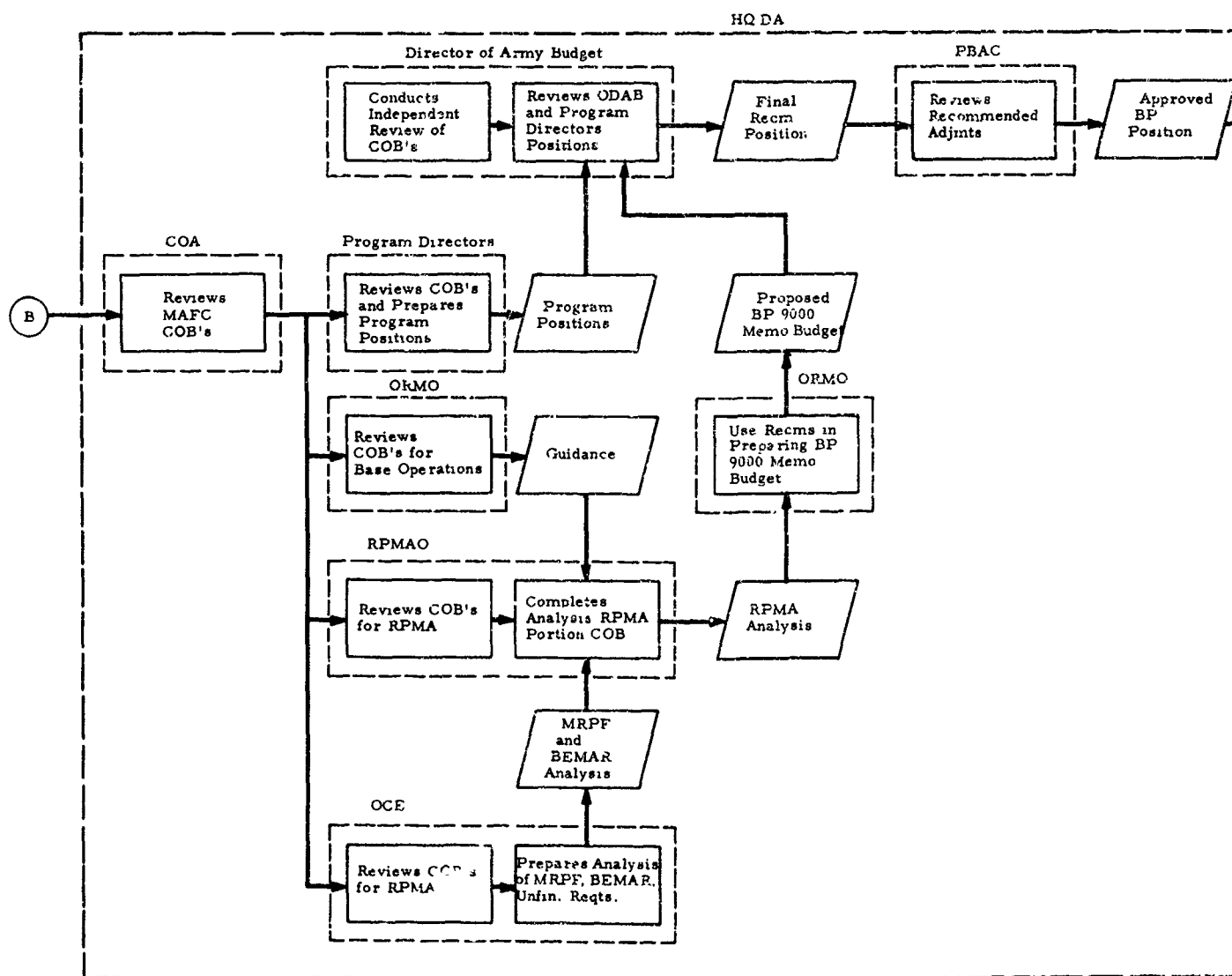
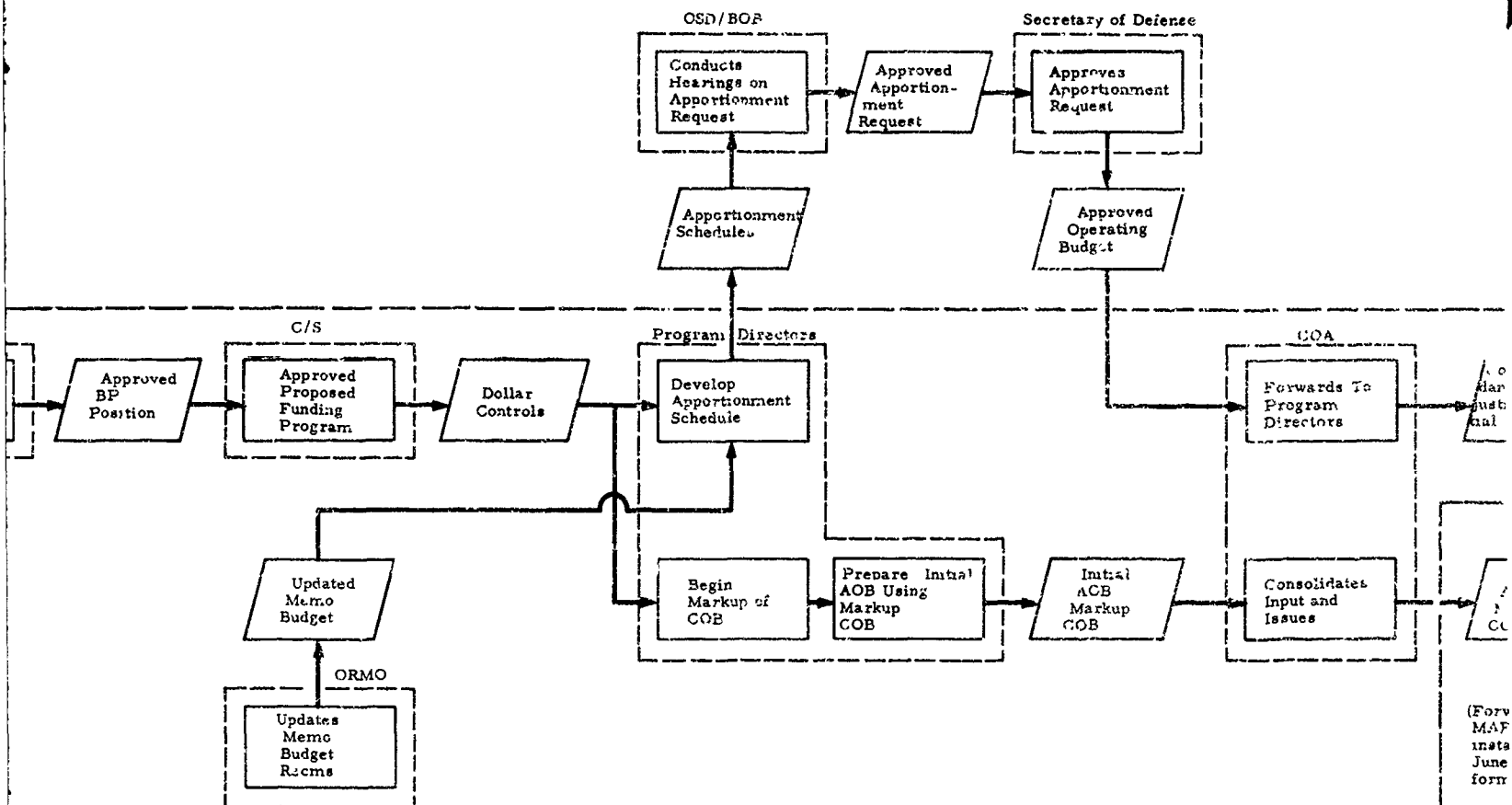


EXHIBIT III-10 PRESENT BUDGET-
ING FUNCTION INSTL/MSD/MAFC/
HQ DA

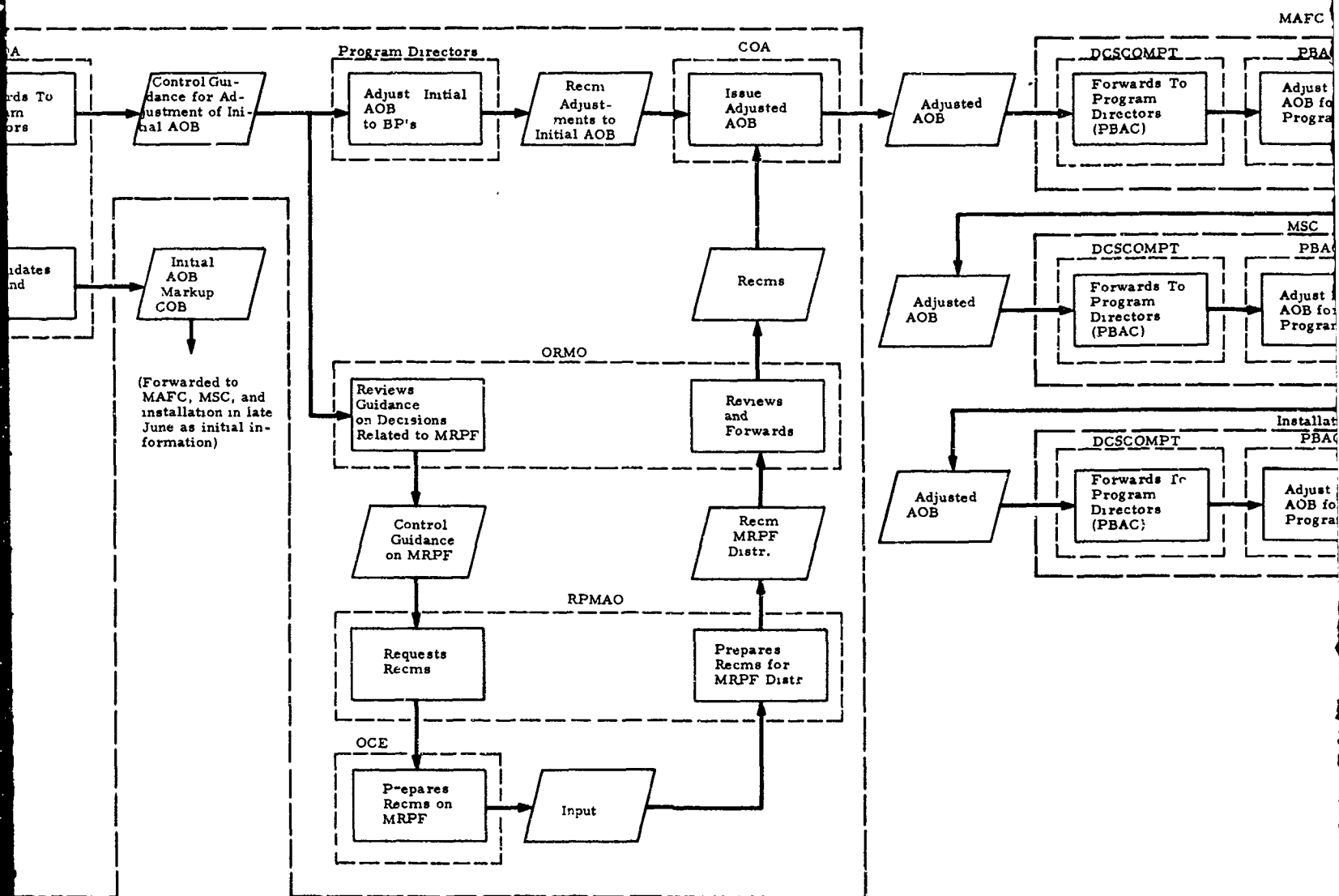


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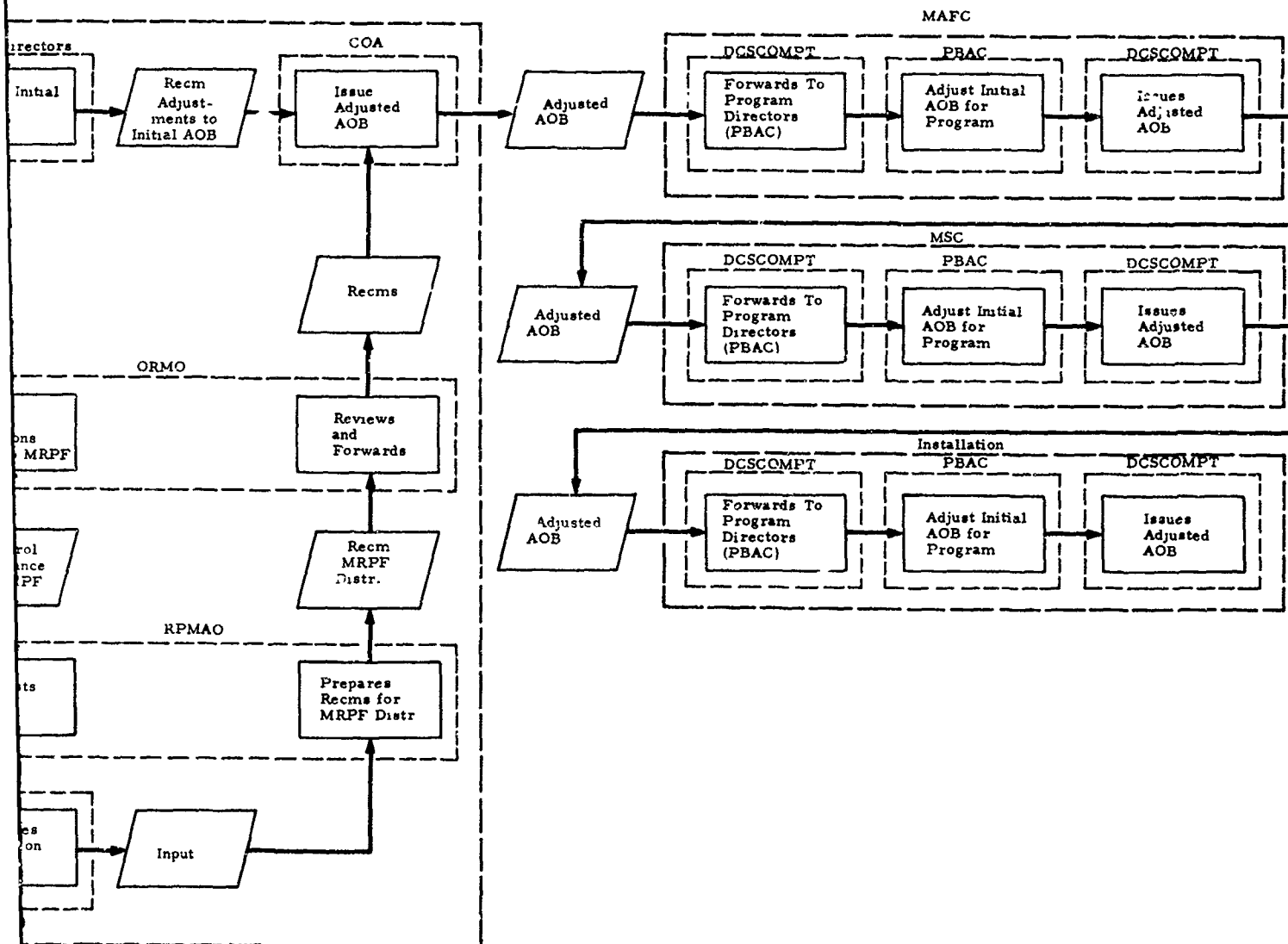


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projects is determined by the post planning board. When the AOB is received at the start of the fiscal year, the AWP at the present time is divided into financed and unfinanced portions, with the unfinanced portion made up primarily of contracts and equipment acquisitions of lower priorities. The AWP is approved by the post engineer and the installation commanding officer, and remains at the installation as an internal work management tool of the post engineer.

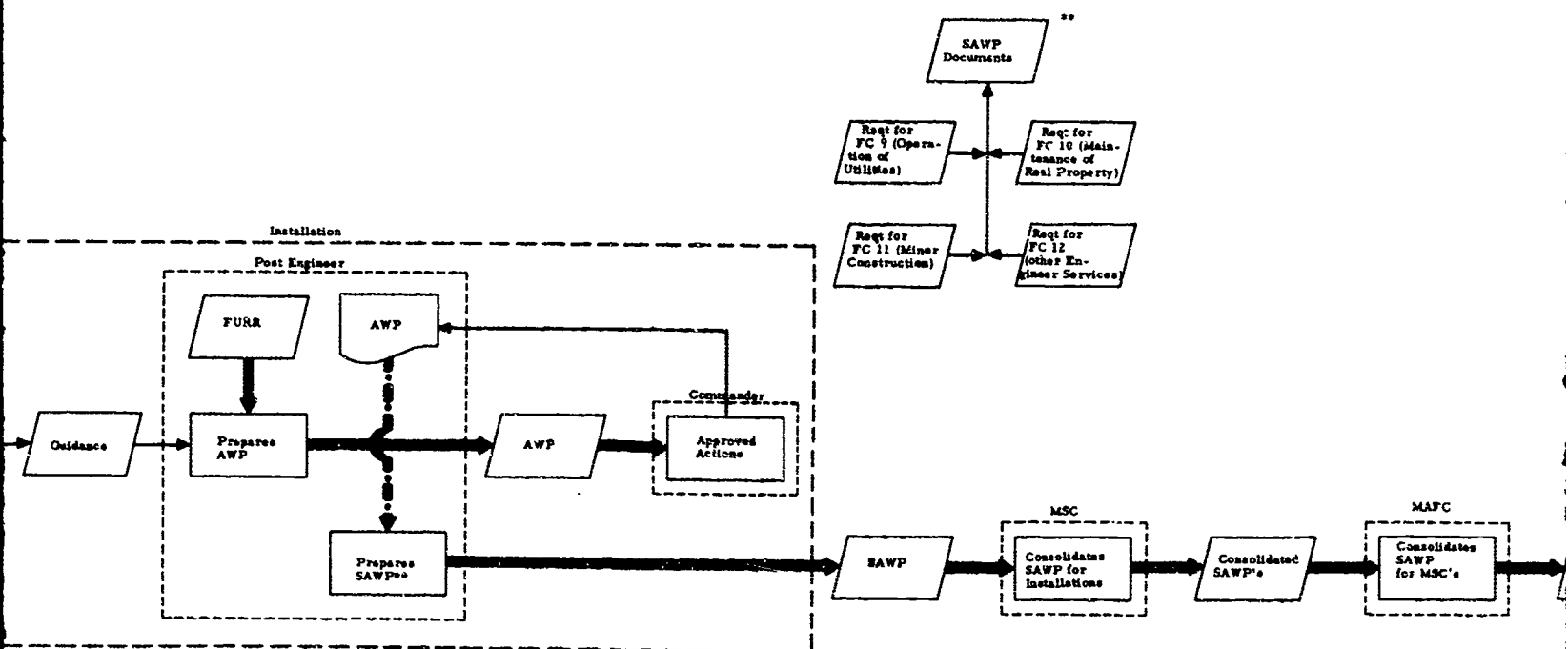
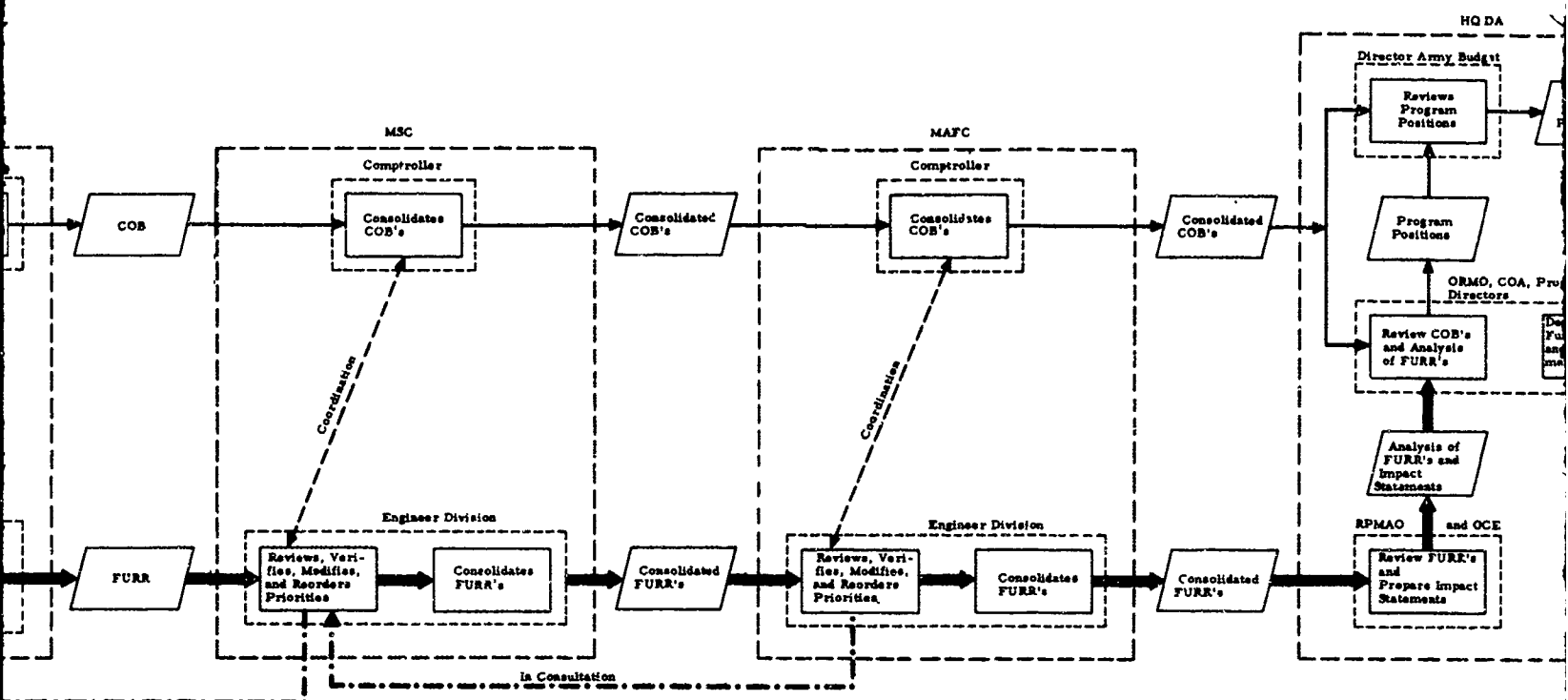
b. Proposed Budgeting Function

Exhibit III-11 portrays the proposed RPMA system design for accomplishing budgeting functions at each echelon. Here again the bulk of the data used for RPMA budgeting will move through the functional channel, with only summary functional category 9, 10, 11, and 12 data moving through the financial channel. Two new reports will be used to transmit the RPMA data. The first report, submitted simultaneously with the COB, will show what RPMA requirements will be financed and what requirements will not be financed with the RPMA dollar guidance contained in the January PBG. This report is called the financed/unfinanced requirements report or the FURR. The second report, submitted soon after receipt of the AOB in June or July, will show how the installations, MSC's, and MAFC's intend to accomplish the RPMA mission with funds available in the AOB. This report is called the summary annual work plan or the SAWP.

The FURR will be developed from the previous year's URR. With the elapse of 11 months from the submission of the previous year's URR, certain changes in circumstances, missions, budgets, and guidance from higher headquarters will have occurred. The post engineer must take these changes into account and, in effect, update the previously prepared URR before he can use it to prepare the FURR.

The FURR will include a description of RPMA activities by program element, as well as a narrative impact statement of the effect of the unfinanced portion of the unconstrained requirements. This report will be processed through the RPMA functional management channel to OCE and DCSLOG to provide detailed backup to the COB.

Actions taken on the FURR as it moves through RPMA management channels from installation to HQ DA will be similar to those



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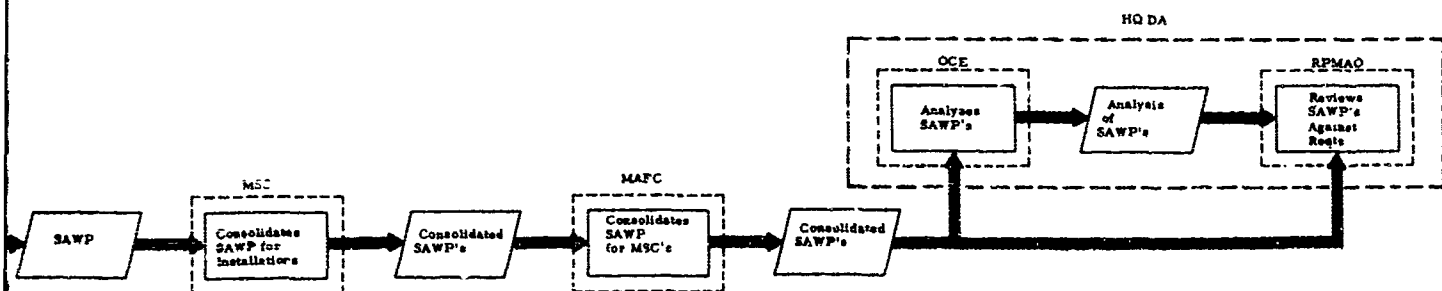
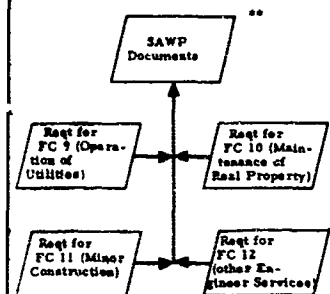
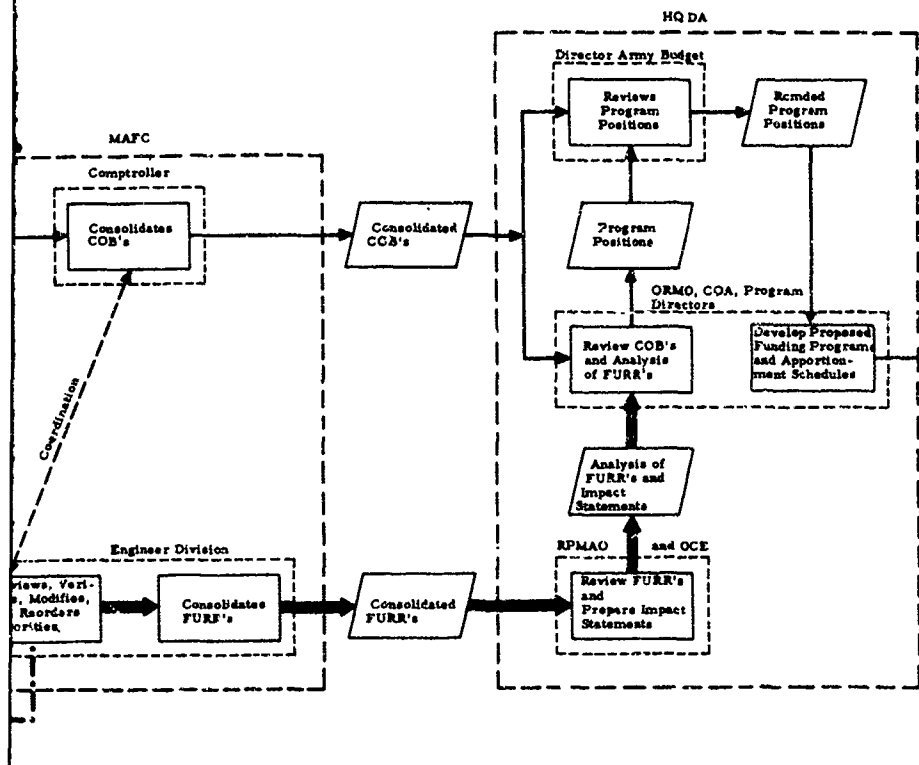


EXHIBIT III-11 PROPOSED BUDGETING FUNCTION INSTL/MSC/MAFC/HQ DA

possible reordering of priorities. Any changes will be made in consultation with the next lower command level.

The SAWP will provide the base against which RPMA managers at all echelons can measure work performed as reported in the execution phase against work budgeted for in the budgeting phase.

7. The Execution Function

a. Present Execution Function

The present execution function, illustrated in Exhibit III-12, includes the midyear review, which originates at the installation level in the form of the BER--approximately 4 months after the year of execution has begun. Such a review is held to assist and influence reprogramming decisions caused by changes in missions and circumstances after publication of the AOB. At the present time, in October of the year of execution, the post engineer organization prepares an input to the BER based on the AOB and accomplishments to date. This input is forwarded to the installation comptroller, who prepares the installation BER and forwards it to MSC.

The MSC and the MAFC use the BER as the basis for reprogramming actions that are within their approval authority. They then consolidate the submissions from their subordinate elements and forward the consolidations to HQ DA. During the month of January the DA staff analyses the MAFC submissions, paying special attention to the backlog of essential maintenance and repair (BEMAR), the maintenance of real property facilities (MRPF) floor, and any high-priority unforeseen requirements. As a result of this analysis, budget programs are adjusted and adjustments are forwarded to MAFC's for implementation.

b. Proposed Execution Function

In the proposed execution function, illustrated in Exhibit III-13, the post engineer will prepare an abbreviated input to the BER (treated as above) and will prepare a midyear review report (MYRR) to provide a support document for the BER. This document will be an update of the SAWP and will be similar in format to the FURR, which provides backup to the COB. Since performance and expense data

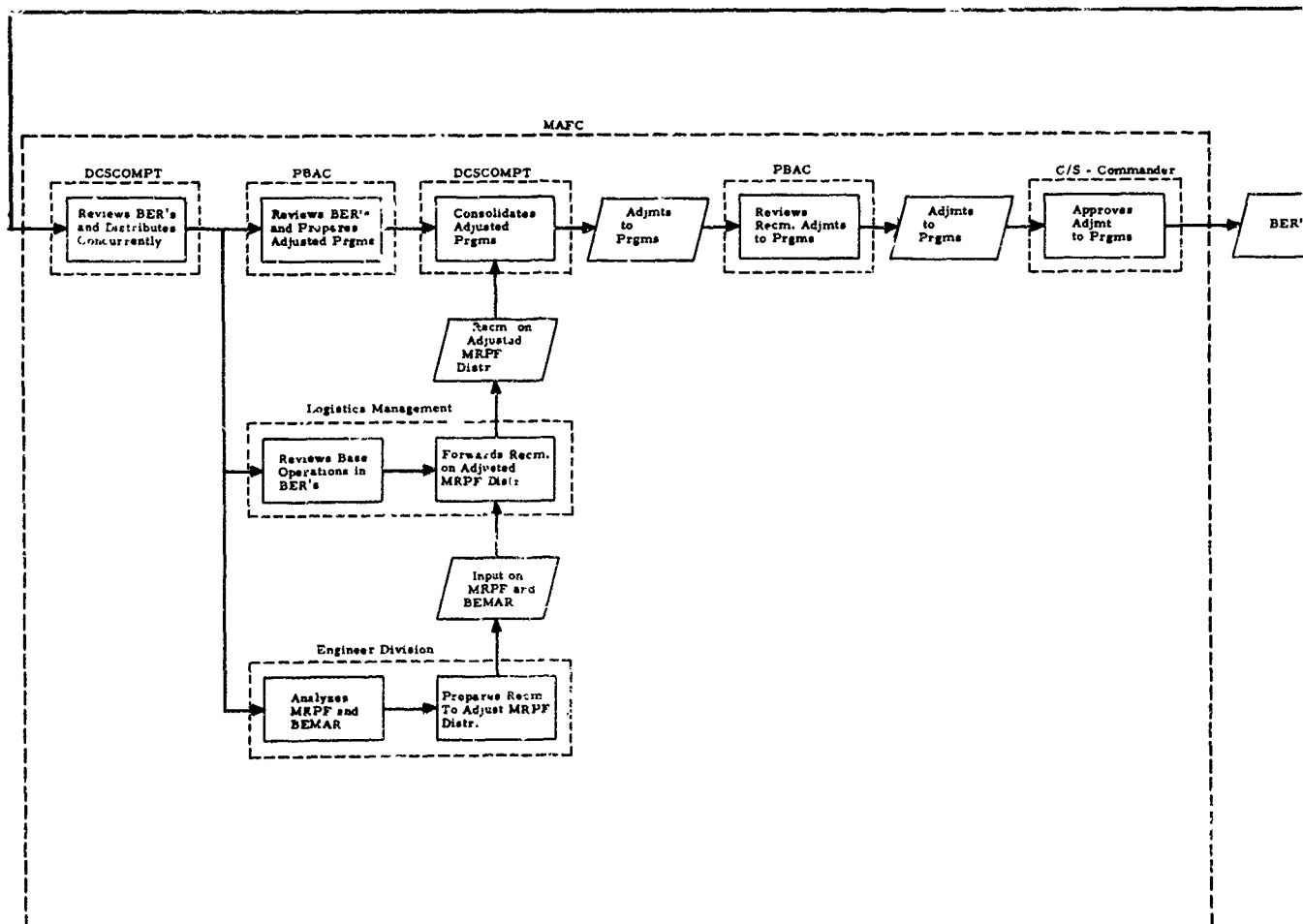
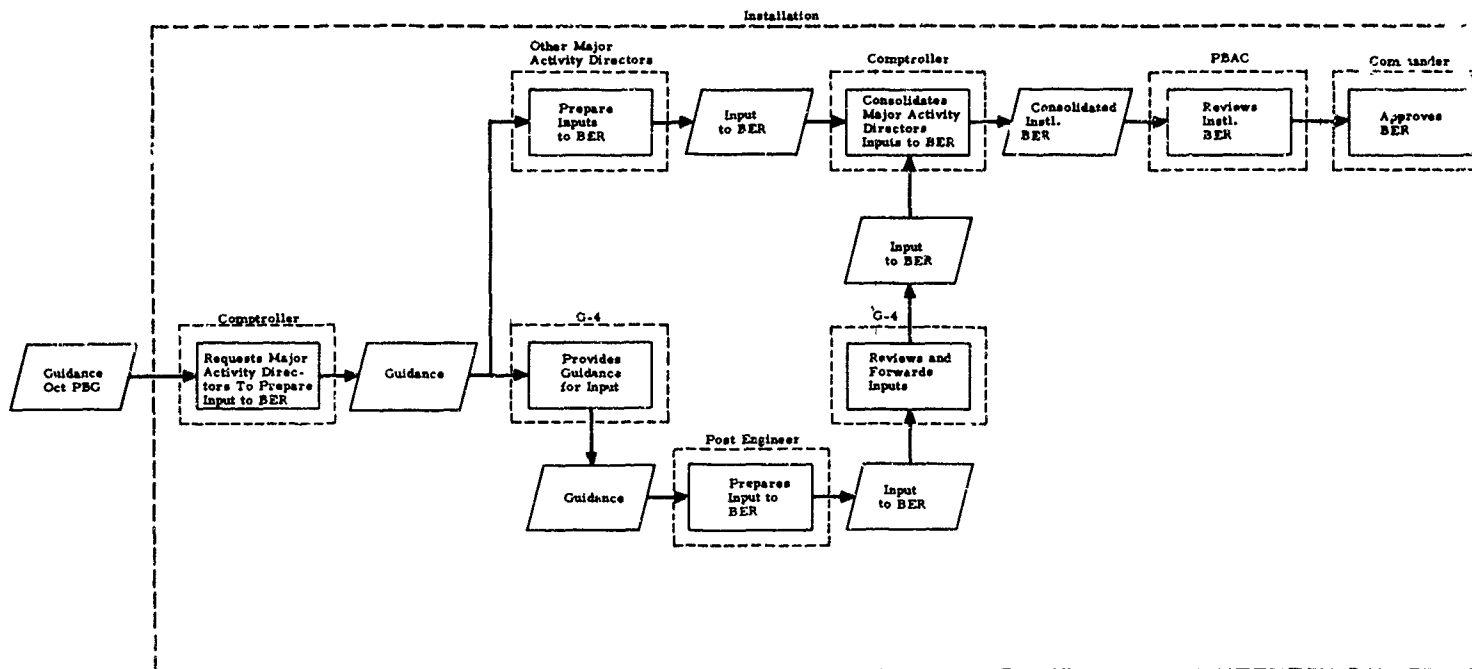
previously described under the URR; that is, the report will be examined, reconsidered, verified, and modified; will have priorities reordered; and will be consolidated at each successively higher level through OCE.

The FURR will contain valid data to support the apportionment request, which, when approved by the Secretary of Defense, becomes the basis for issuance of the approved operating budget.

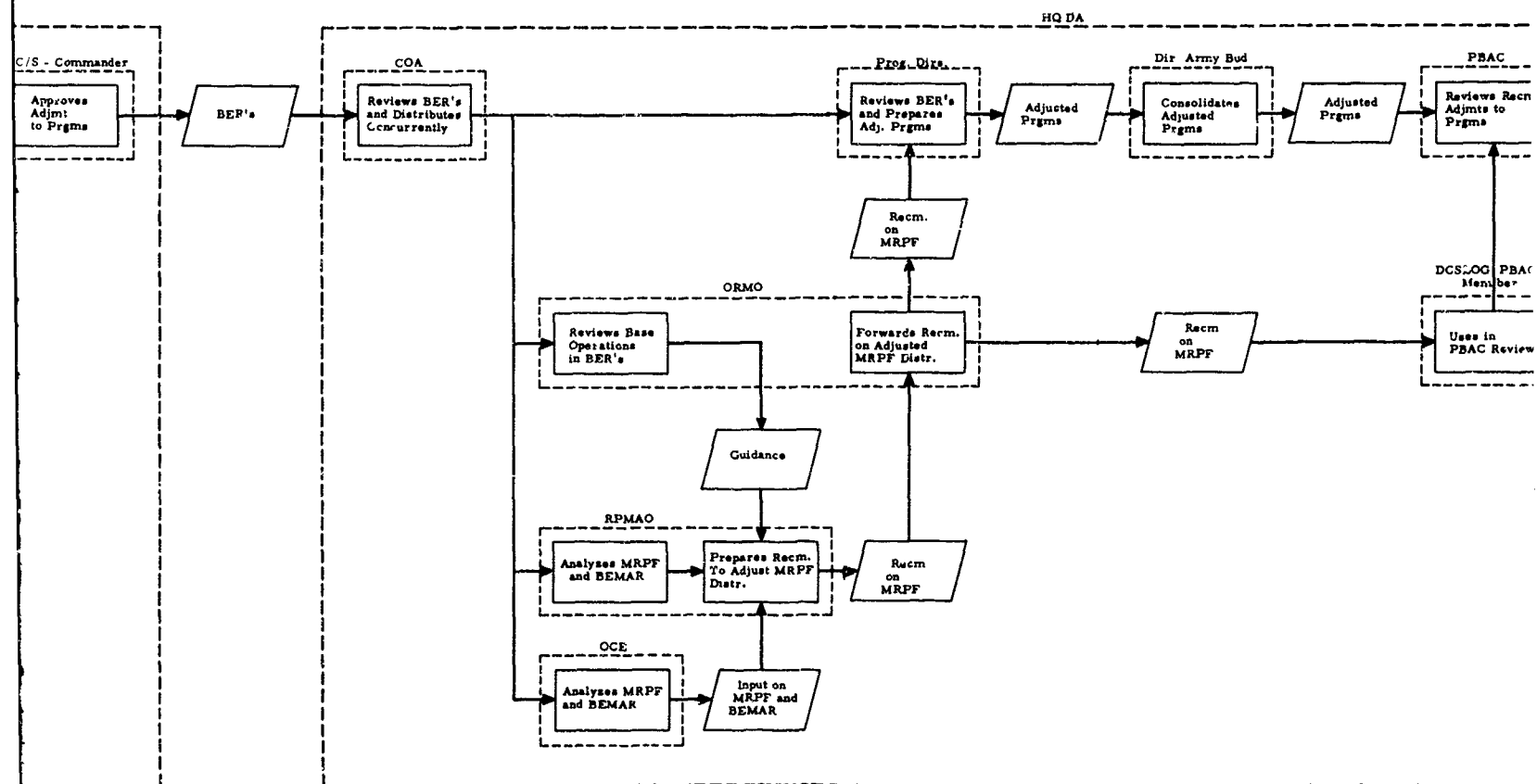
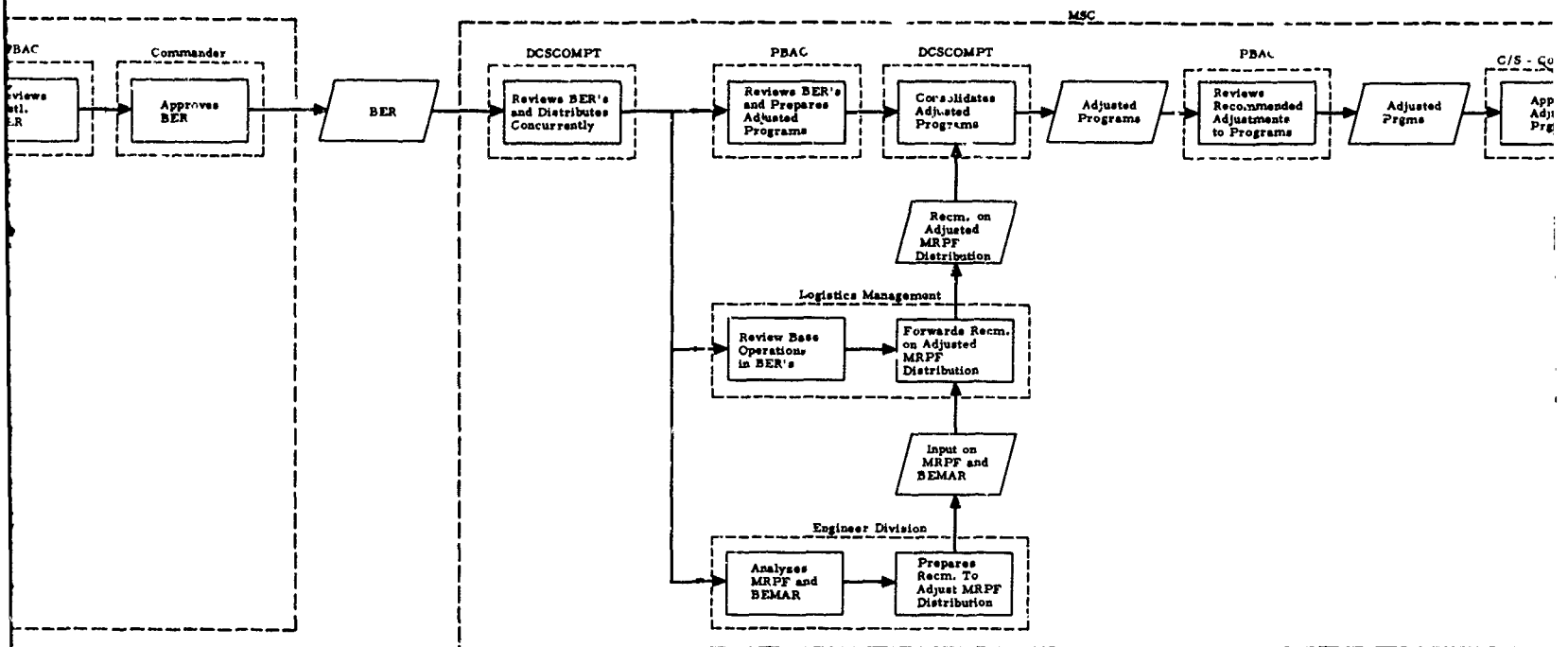
The AOB and the FURR will serve as guidance for the preparation of both a reconstituted AWP as an internal work management tool and a SAWP which will be sent through RPMA management channels to OCE/RPMAO. Preparation of the reconstituted AWP will be similar to that in the discussion on the present budgeting function, but will be greatly facilitated by the detailed specification of requirements that exists in both (1) the UFR, its backup sheets and, in the case of functional category 10, the elements established by designated inspection teams, and (2) the FURR, an updated but more condensed version of the URR. In preparing the reconstituted AWP, the emphasis and display will shift from requirements by functional categories and program elements (users), as in the URR and FURR, to requirements by post engineer operational units--divisions, branches, and shops--to permit the use of the document as an internal work management tool. The preparation of the reconstituted AWP will be further facilitated and its usefulness as a work management tool enhanced by the existence of cost estimates in the URR and FURR broken out into labor (man-hours and dollars), materials and supplies, equipment, and contracts.

The reconstituted AWP will remain in the post engineer shop, after approval by the installation commanding officer (CO), as is the case at present. The SAWP, prepared after the AWP, will be comparable in form to the URR, but will contain more detail and will be sent through RPMA management channels to OCE/RPMAO.

MSC's major responsibility with respect to the SAWP will be to ensure that its installations plan to execute highest priority work requirements within the funds available. Furthermore, at the MSC and MAFC, the SAWP will be reviewed for accuracy of estimates, for



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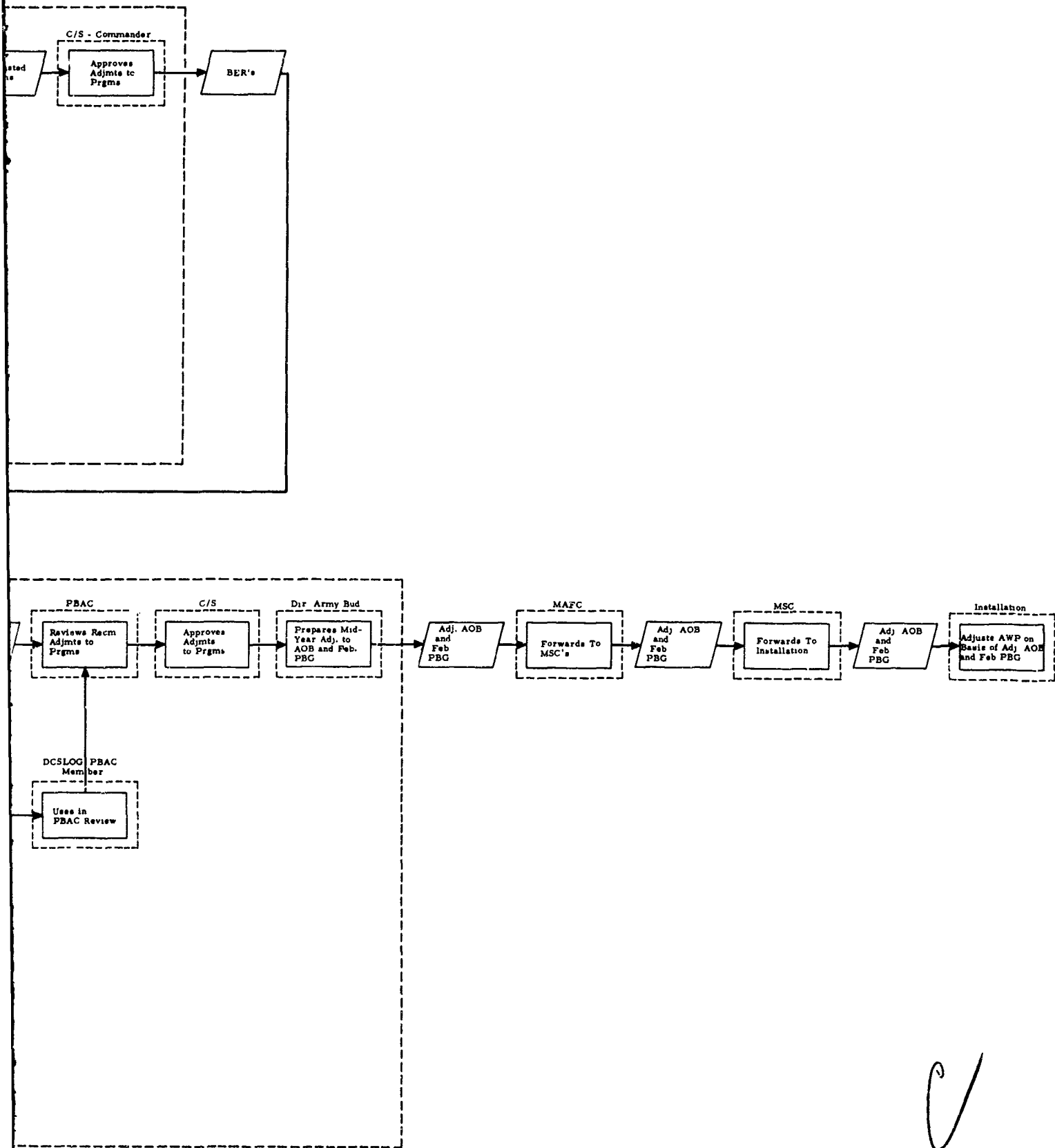
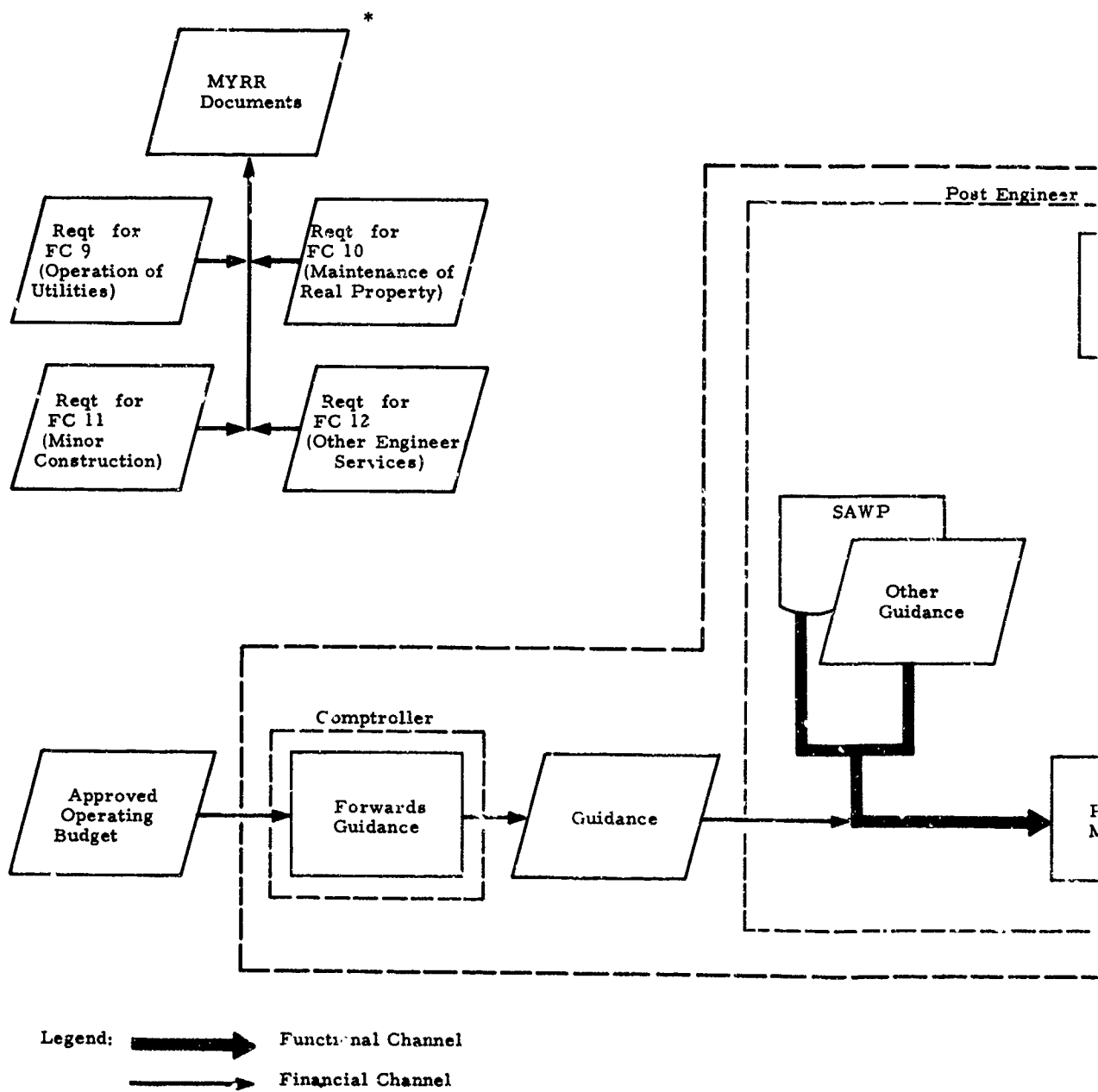
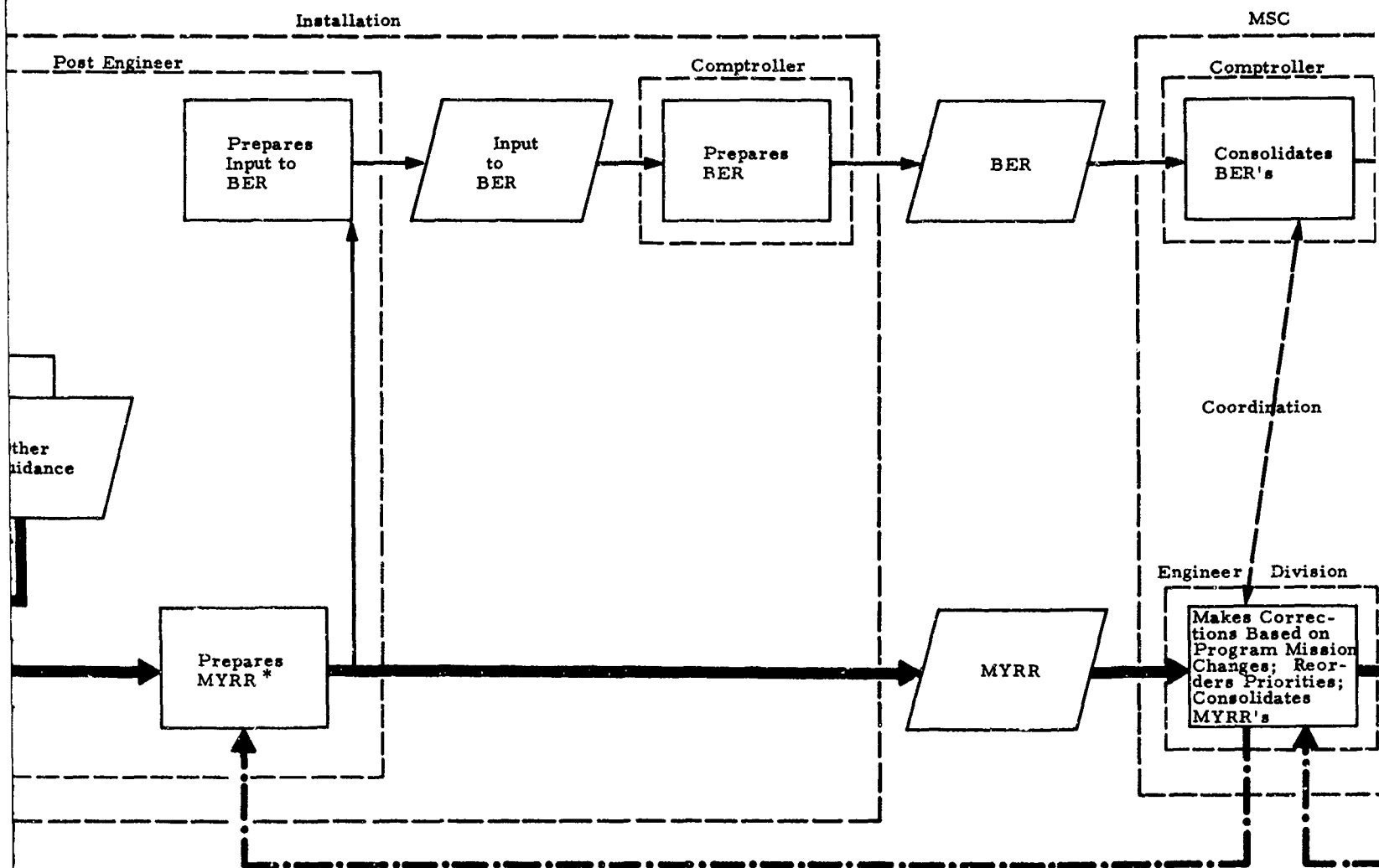


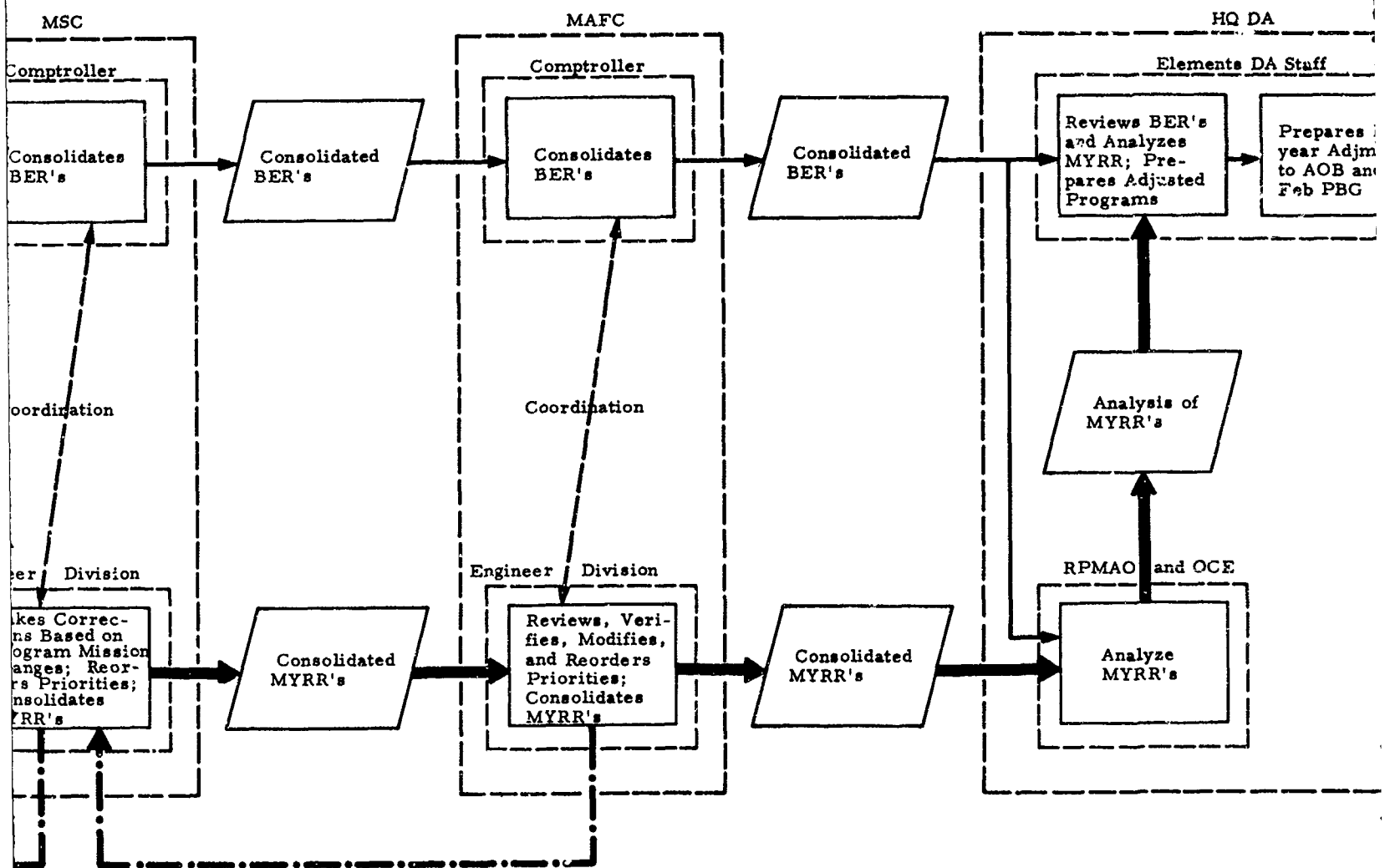
EXHIBIT III-12 PRESENT EXECUTION
FUNCTION INSTL/MAFC/HQ DA



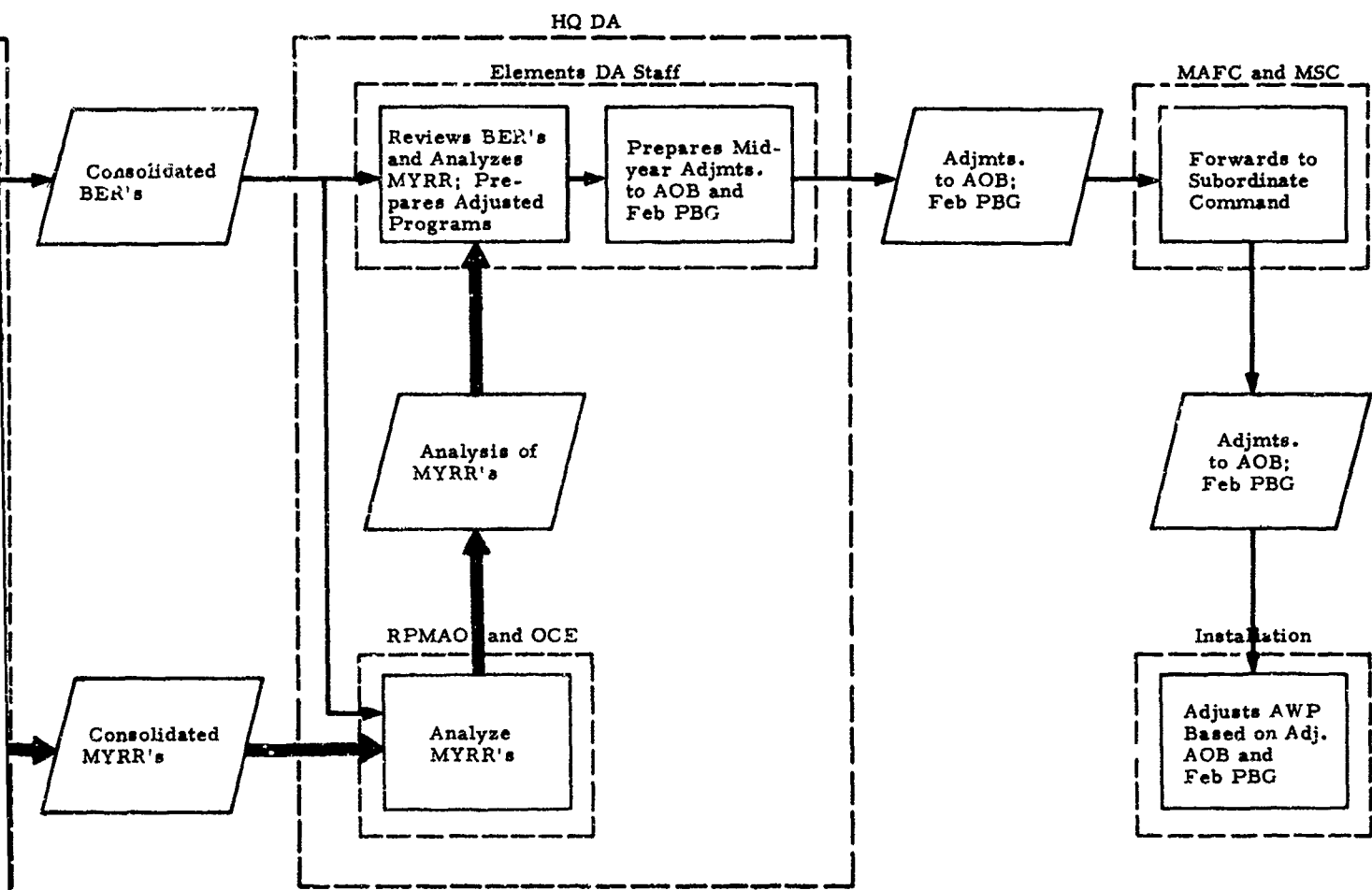
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EXHIBIT III-13 PROPOSED EXECUTION FUNCTION INSTL/MSL/MAFC/HQ DA

for the first 4 months of the year of execution are reported in the BER, only a revised breakout of RPMA activities into financed and unfinanced portions will be included in the MYRR. The MYRR will include impact statements to restate the post engineer's case, and will rise through RPMA management channels to HQ DA.

At MSC and MAFC, the MYRR will be reviewed for validity and accuracy of estimates, for possible mission changes that lead to additions or deletions, and for possible reordering of priorities. Any changes will be made in consultation with the next lower command level. The analysis of the MYRR by the RPMAO will provide program directors with data related to the adequacy of RPMA funding provided for their programs.

8. The Review Function

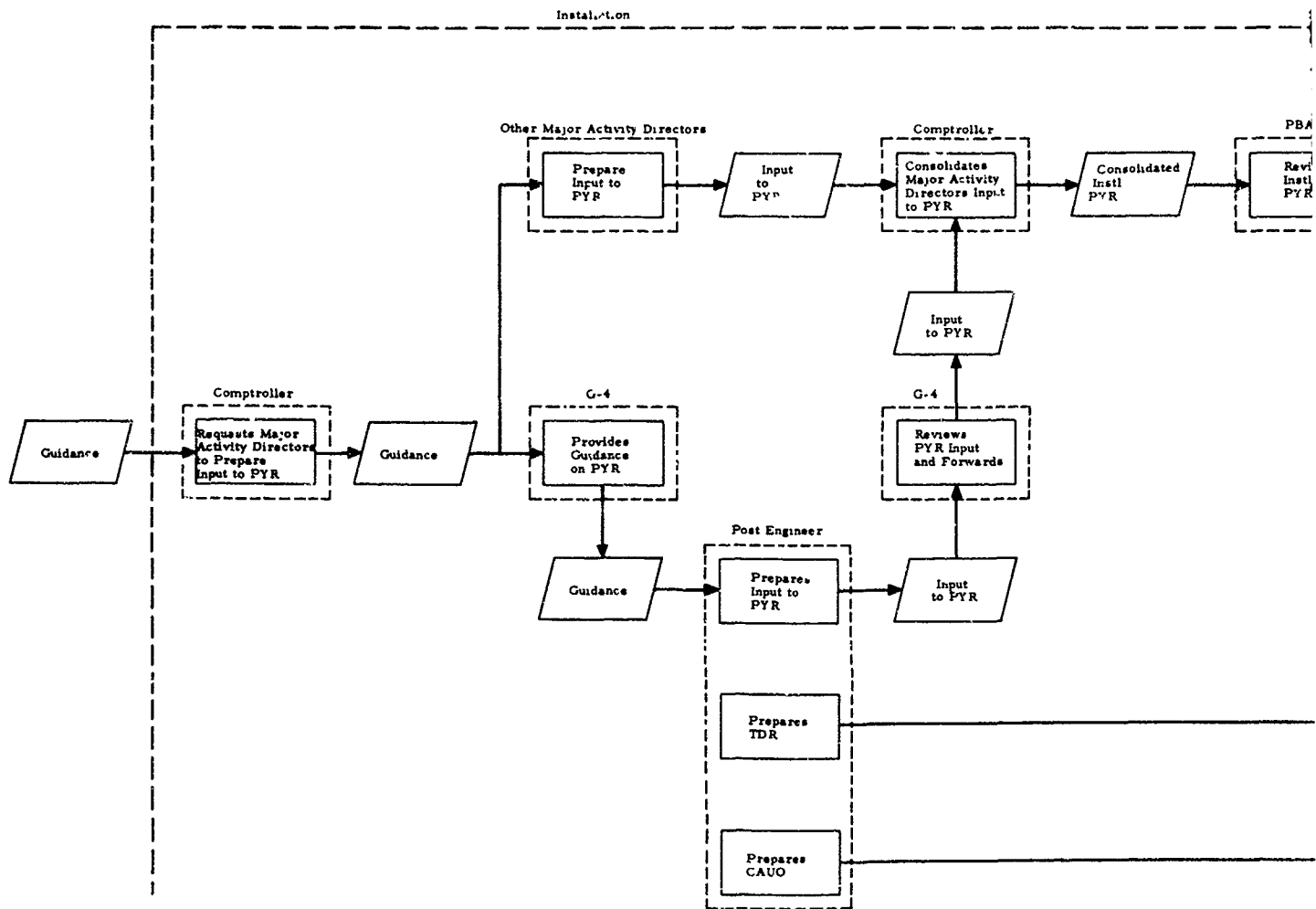
a. Present Review Function

Review and performance actions now in use are portrayed in Exhibit III-14.

Following the year of execution, prior-year reports (PYR's) close the PPBER cycle, permitting comparison between actual performance and expected performance. The two will differ due to changes in circumstances, missions, budget guidance, and uncertainties in estimates.

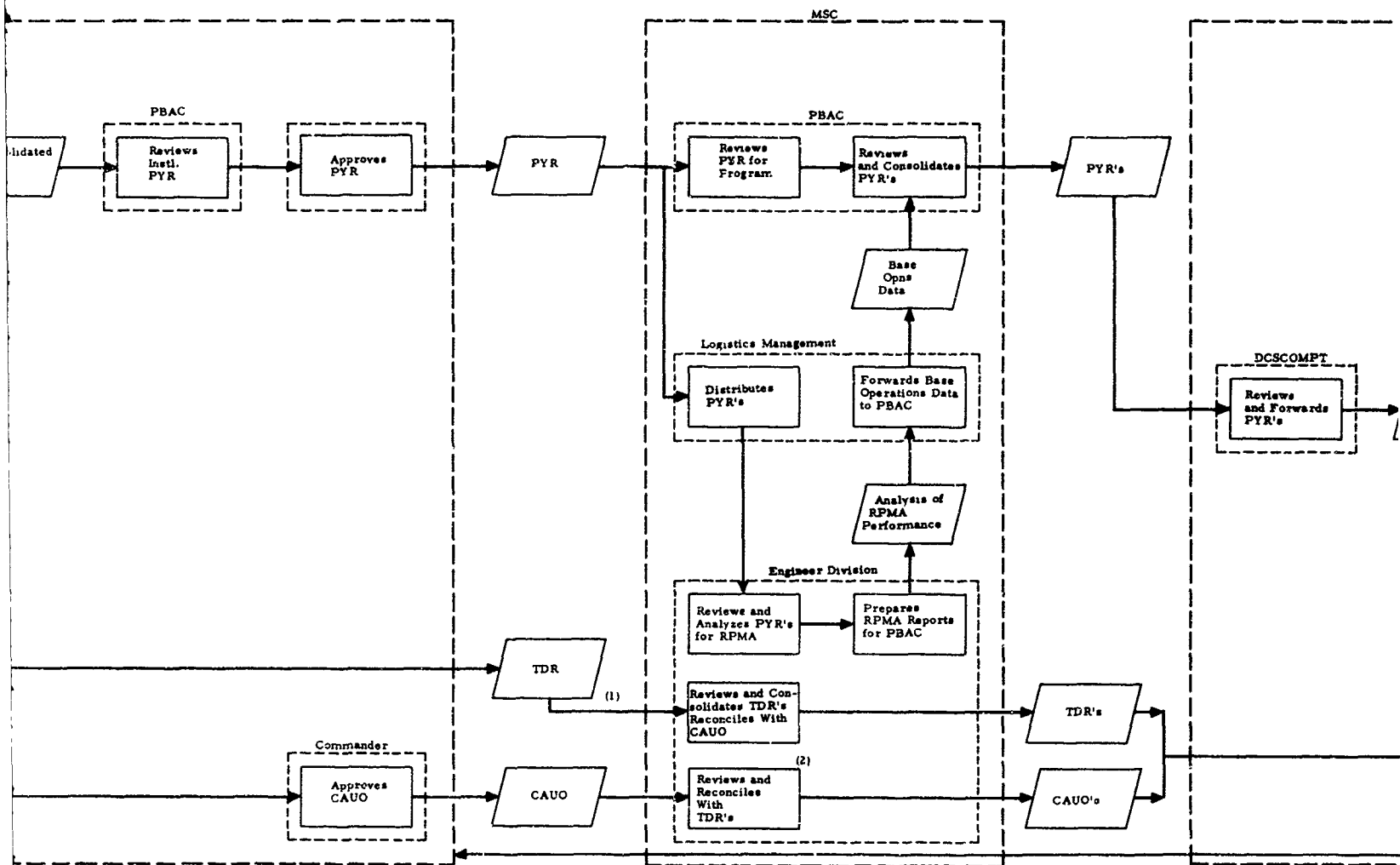
At the present time, the post engineer organization prepares a detailed input to the PYR and the MORP which move through financial channels; it also prepares the technical data report (TDR) and the command analysis of utilities operations (CAUO) report which move through functional channels. Installation TDR's are reviewed and consolidated at MSC's. MSC consolidations, together with copies of installation TDR's, are forwarded to MAFC's. MAFC's review and consolidate the reports from MSC's and forward them to the Facilities Engineering Division, OCE, together with copies of installation TDR's.

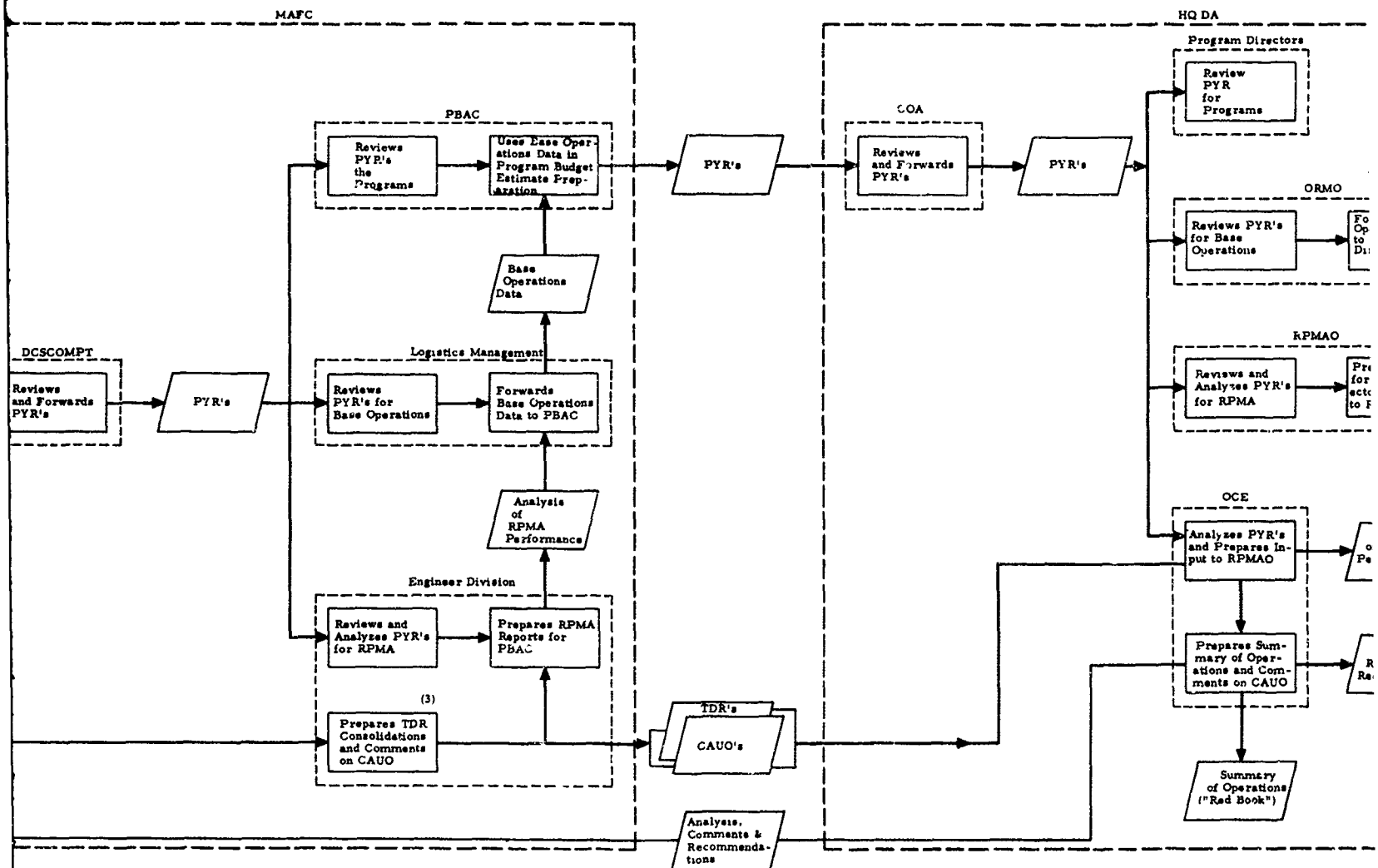
Installation CAUO's are forwarded to MSC's. MSC's prepare consolidated CAUO's, but are not required to forward copies of installation CAUO's. MAFC's review the MSC CAUO's, provide additional comments deemed appropriate, and forward them, again without installation visibility, to the Facilities Engineering Division, OCE.



- Notes (1) Alternate TDR route for selected MAF, i.e. installation TDR bypasses MSC and goes directly to a designated Class II field activity of the MAF. See Note 3
- (2) Alternate CAUO action for selected MAF, i.e. installation CAUO forwarded w/o action by MSC to a designated Class II field activity of the MAF. See Note 3
- (3) Designated Class II field activity of selected MAI performs this operation and submits consolidations and summarizations to HQ MAF, which then forwards FDR's and CAUO's to OCE

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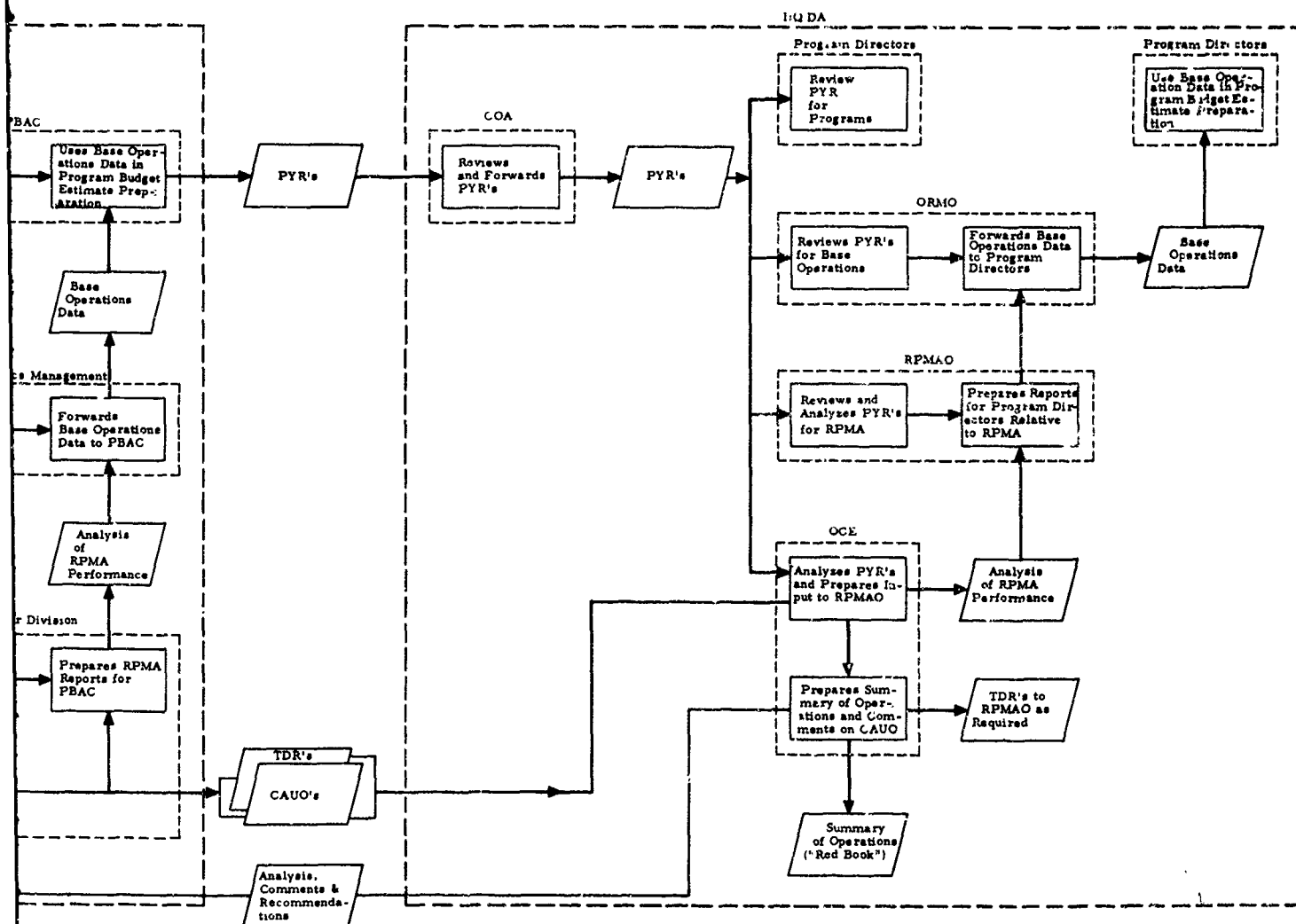


EXHIBIT III-14 PRESENT REVIEW
FUNCTION-INSTL/
MSC/MAFC/HQ DA

D

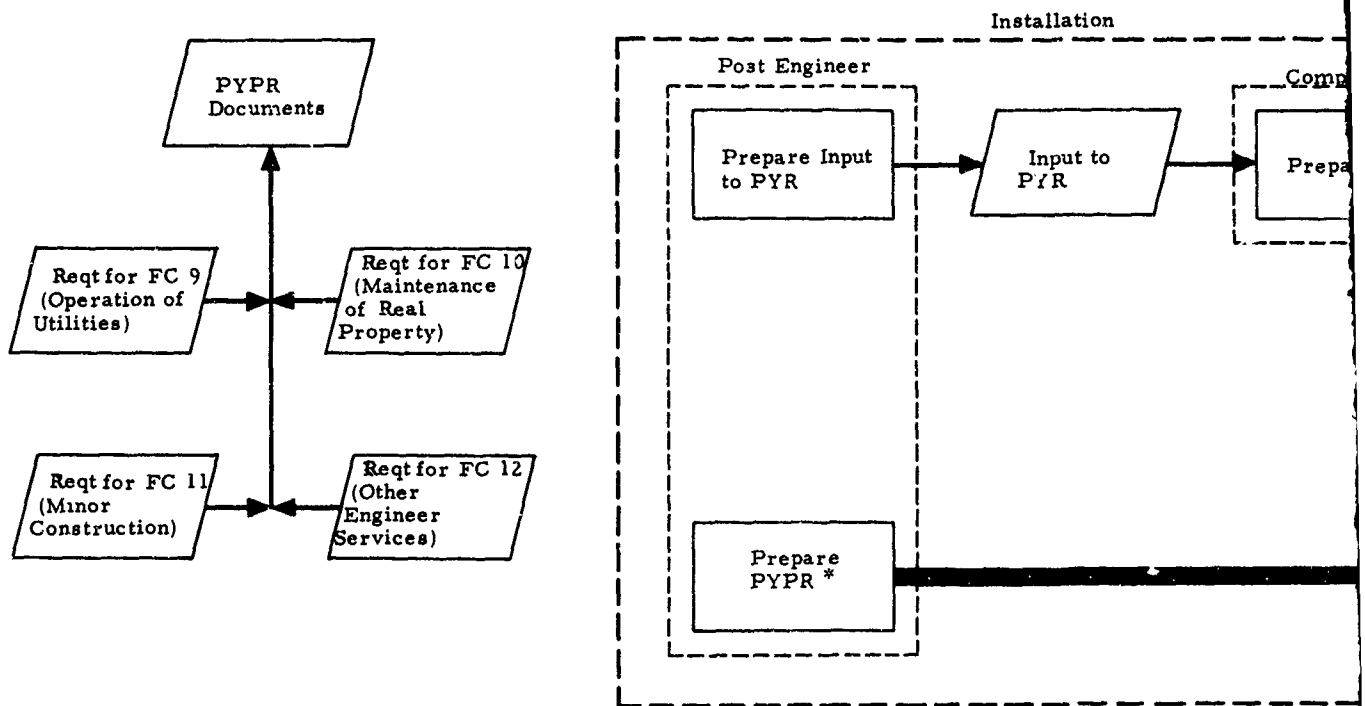
OCE uses the TDR's and CAUO's to evaluate and analyze RPMA programs, to determine the effectiveness of utilities programs, and to develop RPMA policy and standards. OCE also uses these reports to prepare the Annual Report on RPMA, which is forwarded to OSD during the month of November, and to prepare the Annual Summary of Operations ("Red Book"), which is usually published in the month of February.



b. Proposed Review Function

The proposed review function is shown in Exhibit III-15. At the installation the post engineer organization will provide the controller summary RPMA data (i. e., totals for functional categories 9, 10, 11 and 12) rather than detailed data as input to the financial PYR. Detailed RPMA data will be contained in a new PYPR, which will take the place of the TDR, CAUO, and MORP reports now being prepared. The PYPR will follow the format of the other RPMA facilities management reports--the SAWP in particular--with a summary sheet and back-up sheets for each functional category. Data collected by the post engineer organization during work execution will include program element; priority; building component, where appropriate; and cost breakout by labor, materials and supplies, equipment, and contracts; so that comparisons can be made with requirements as expressed in the URR and with the execution plan as expressed in the SAWP.

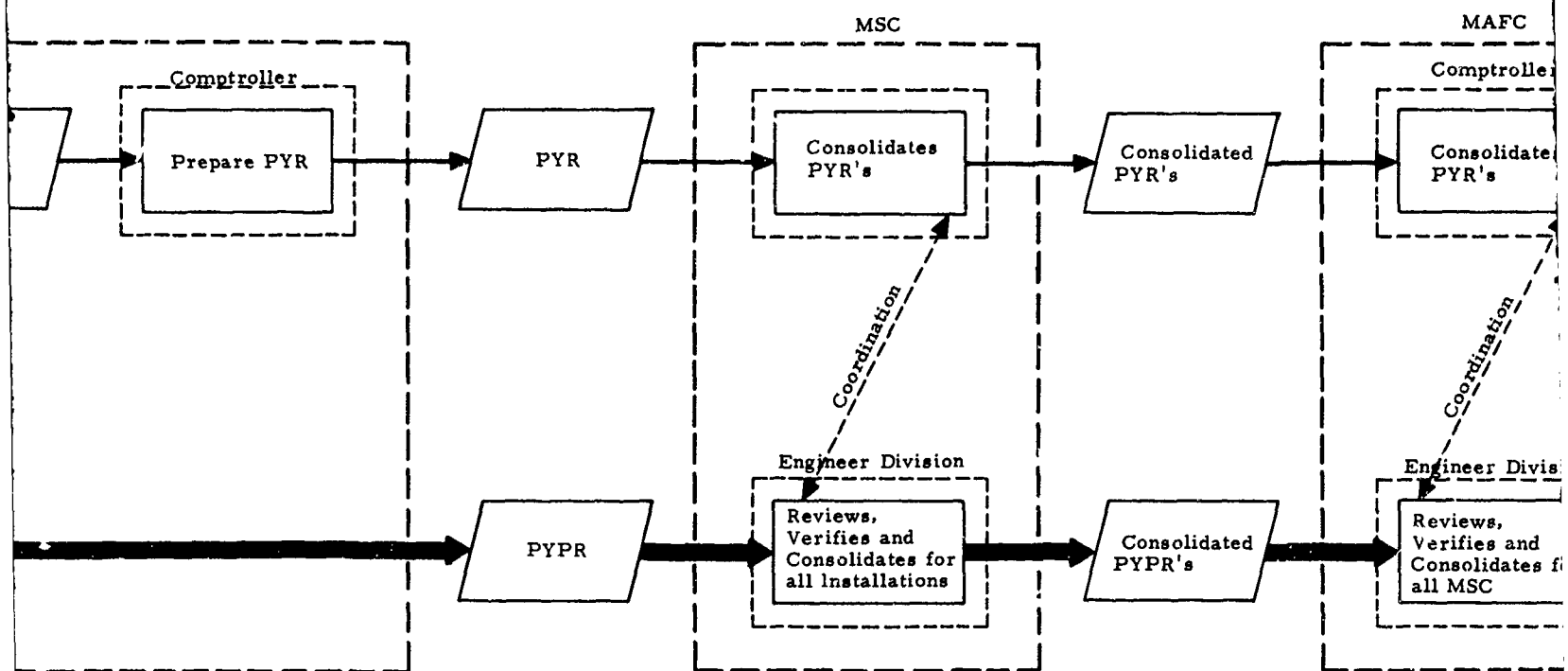
An impact statement will be contained in the PYPR and will play a valuable role in letting program directors, manpower directors, and technical management at higher headquarters know the effects of their decisions. Significant impacts such as utility failures or unfunded projects will be related to accomplishment or lack of accomplishment of the user's missions and, where appropriate, to shortages of funds or manpower.

Installations will forward PYPR's through RPMA functional management channels to MSC's and in turn to MAFC's where they will be reviewed, consolidated, and coordinated with the MSC and MAFC PYR's. PYPR's forwarded by MAFC to HQ DA will contain installation visibility.



Legend:  Functional Channel
 Financial Channel

A



B

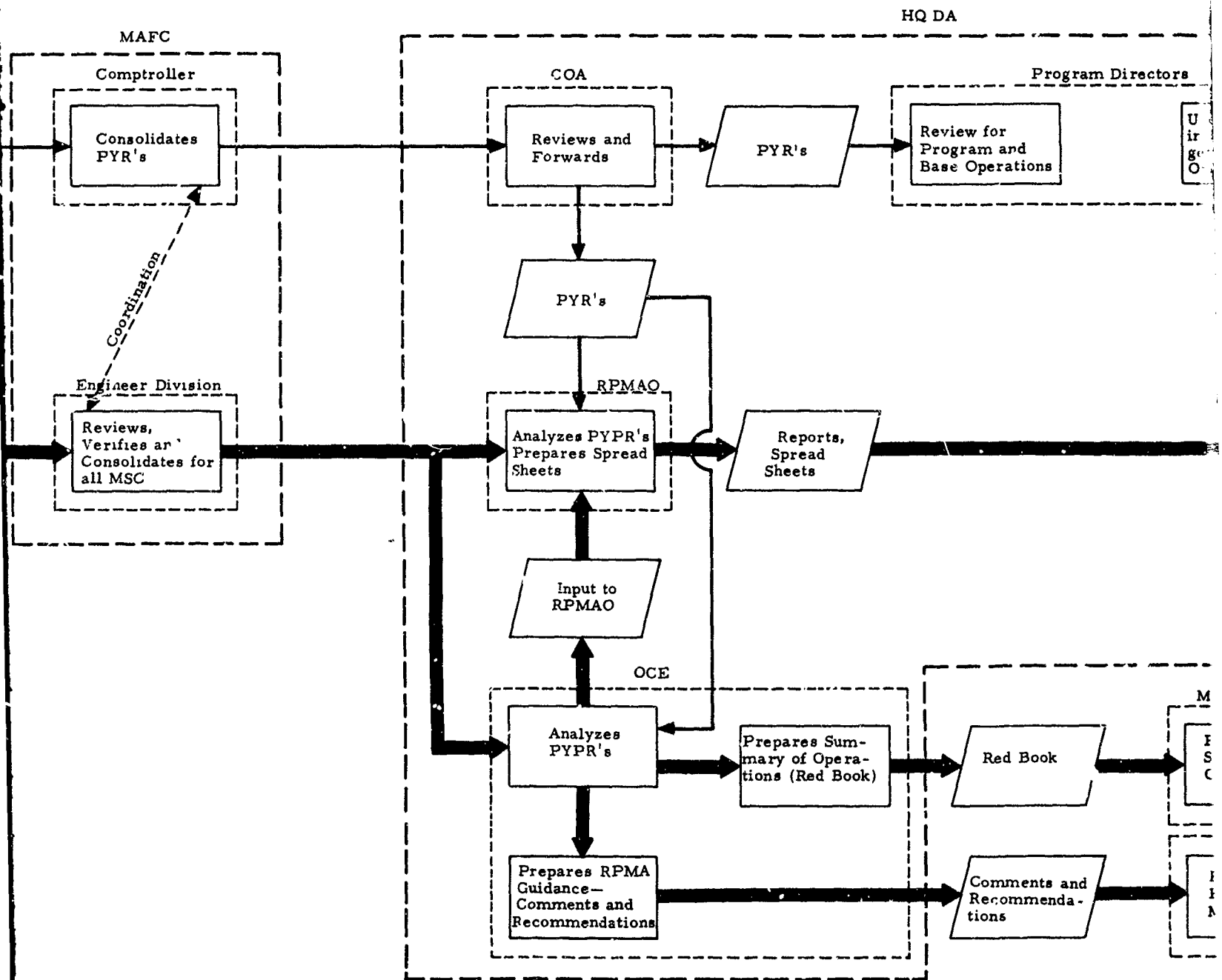


EXHIBIT III-15 PRO
FUL
MSC

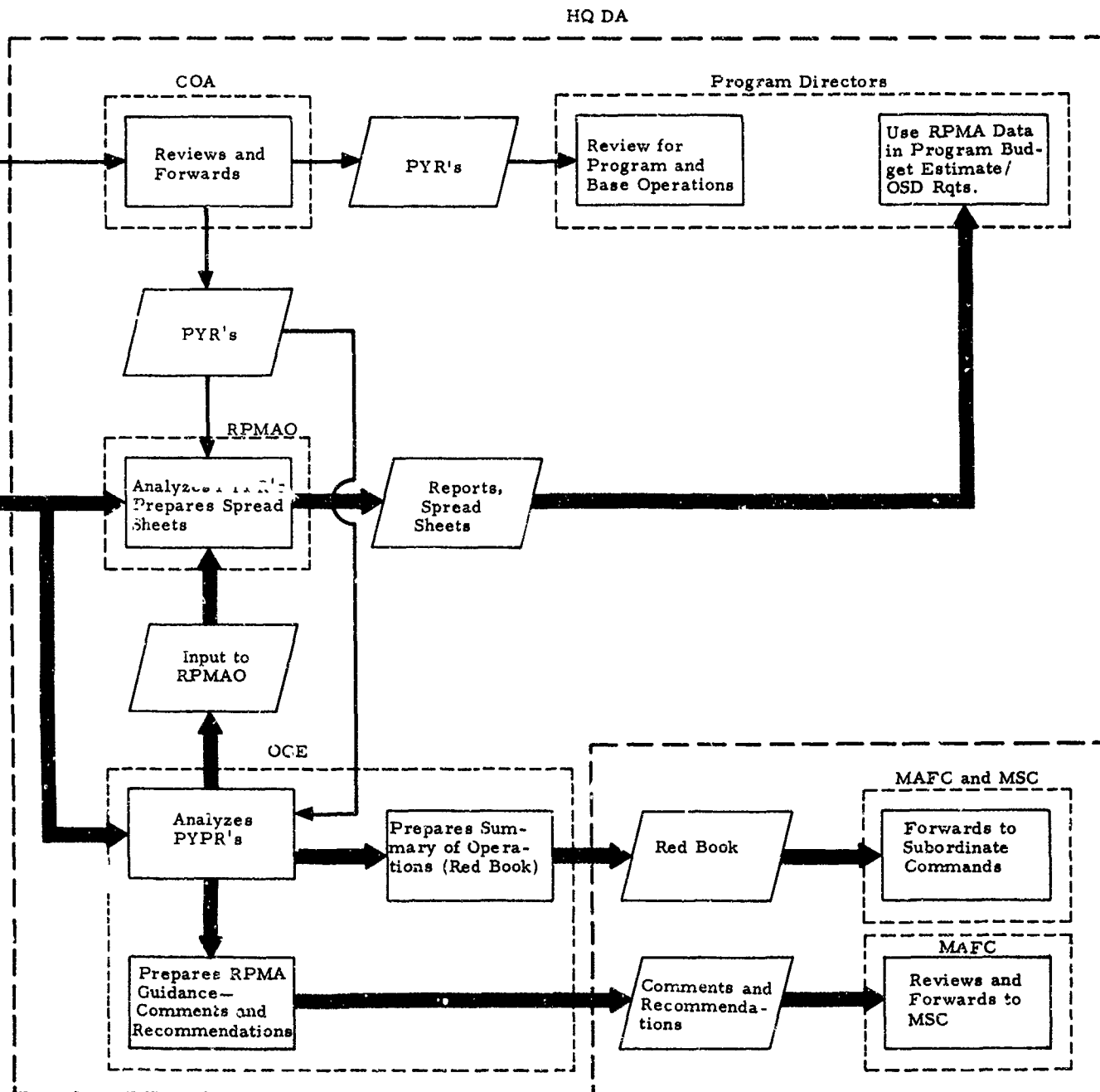


EXHIBIT III-15 PROPOSED REVIEW
FUNCTION—INSTL/
MSC/MAFC/HQ DA

D

OCE and the RPMAO will use the data contained in the PYPR not only for technical analysis ("Red Book") and reports to OSD, but also to defend proposed RPMA programs.

Combining the detailed data now contained in three reports into one report will lessen reporting requirements on the post engineer and will provide a capability for comparing actual performance against what had been programmed for that year. Thus data furnished to the program directors should result in better understanding of the results of funding for RPMA and can influence the program budget estimate under preparation at the time of receipt of the PYPR.

C. Summary of Proposed RPMA System Accomplishments

The RPMA management system design presented in this document will support more effective RPMA management at all echelons throughout the management cycle. Specifically:

1. It will provide a statement of RPMA requirements during the planning phase of the PPBER cycle. These requirements, presented by FYDP program and program element, will permit consideration of RPMA in such documents as the Army force development plan (AFDP), the ASOP, the JSOP, and the logistics DGM.

2. It will provide uniformity and consistency between RPMA data used in technical, financial, and real property accounting data systems.

3. It will provide a high degree of visibility of the technical and financial aspects of RPMA, with comparable RPMA data being used from one phase to the next in the PPBER cycle.

4. It will inform facility users (e.g., program directors) concerning RPMA support of their programs by showing:

- Condition of facilities occupied
- Priority of RPMA work required
- Cost of RPMA support required
- Impact of shortfalls
- Quality and effectiveness of RPMA support rendered

5. It will provide improved visibility of technical aspects of the RPMA programs for facility maintainers at echelons above

installation; i.e., RPMA staffs will be given more and better structured information on the degree to which validated RPMA requirements and approved RPMA budget programs are met.

6. It will provide a closer relationship between the installation post engineer work management system (the AWP in particular) and RPMA functional reports forwarded to higher headquarters.

7. It will provide for the identification of charges against groups of similar facilities and facility components—information which is needed for improved RPMA functional management.

8. When automated, it will provide rapid answers to questions concerning RPMA.

9. It will provide structured and comprehensive backup that, when automated, can be easily retrieved if requested during reviews or analysis.

10. It will provide for reporting efficiency of post engineer work execution.

D. RPMA Activities That Should Be Initiated in Phase IIB

During Phase IIB of IFS development, certain activities should be initiated to ensure the full benefits obtainable from this RPMA design. The three activities that should be initiated in Phase IIB are listed below; each is discussed in the following paragraphs.

- Integration of the RPMA design into the IFS detailed functional system requirements (DFSR)
- Validation of the proposed RPMA vertical reporting system, by performing a pilot test
- Development and design of an automated work management system to support both the RPMA execution at the installation and the RPMA vertical reporting system

The DFSR will serve two major roles. One is to integrate all of the IFS designs into a single facilities management information system that vertically ties all the echelons together. The second purpose is to describe and specify the automated support that will be provided to the management information system. This activity will lead to the ultimate automation of the RPMA vertical reporting system.

The design of the RPMA vertical reporting system should be tested to validate the design and to determine the impact of the system. This test might be conducted at all the installations within an MSC, at the MAFC, and at HQ DA (e.g., all installations within Fourth Army and at CONARC). If the results of the test are favorable, the Army should consider installing the system manually until the automated IFS is installed.

At the installation level there is a need for an automated work management system that would support both the daily operations of the post engineer and the vertical reporting system. During Phase IIB an automated work management system should be developed and designed.

IV. RPMA FUNCTIONAL DESIGN

(Under Separate Cover)

V. RPMA WORK MANAGEMENT

A. Introduction

The purpose of this section is to define and describe the RPMA work management system which now exists at installation level, to show its relation to the RPMA system design, both manual and automated, presented in this document, and to identify information required by the proposed RPMA system but not now available in the work management system.

AR 420-17, The Work Management System, defines work management as "...The application of sound principles and procedures in planning, estimating, scheduling, recording, and evaluating the performance of post engineering to improve performance, effectiveness and efficiency..." From this definition, it is evident that work management is a comprehensive system which encompasses all activities related to the post engineer and his daily responsibilities.

The Army established the post engineer work management system, which prescribes the policies, responsibilities, and principles for management of post engineering work, in order to:

- Increase the productivity of the work force engaged in post engineering work by the application of industrial engineering techniques
- Ensure a standard, efficient method of work control for all post engineering work at the installation level
- Attain the maximum practical return from resources expended for post engineering work
- Relieve maintenance supervisors, to the maximum practicable extent, of administrative details so their efforts may be devoted to direct supervision of the maintenance force

The Army envisions work management to be embodied in three Department of the Army pamphlets (DAP)—420-4, 420-5, and 420-6—described below.

DAP 420-4, Repairs and Utilities Work Sampling, prescribes the sampling of work as an essential measuring tool for the post engineer. It describes techniques that are useful in locating and pinpointing problems such as delays and inactivity encountered during performance of RPMA work. The method of random sampling enables the post engineer to identify these problem areas and eliminate them.

DAP 420-5, Work Performance Standards, contains labor time standards as they apply to typical post engineering activities. Their primary value to the post engineer is their usefulness as a tool for scheduling post engineering activities and for measuring the performance of these activities against established standards. These two uses of the work performance standards enable the post engineer to identify nonproductive time and evaluate his management capability. A critique of this pamphlet is attached as Appendix D.

DAP 420-6, The Work Management System, sets forth the procedures for RPMA work management. It states that the size of the post engineering activity and the in-house work load will determine the degree to which the post engineer will apply the recommended procedures. Regardless of the methods adopted, however, the post engineer must ensure effective control of the work and continuing analysis and evaluation of work performance.

B. Categories of Work and Work Order Processing

Basic to the work management system are the methods used and the criteria established for effective scheduling. To provide effective scheduling, work requirements are grouped into three major categories: (1) standing operating orders (SOO), (2) service orders (SO), and (3) individual job orders (IJO).

Standing operating orders encompass those operations, and services, for which the specific work and manpower requirements are relatively constant and predictable. These work and manpower requirements must be planned and scheduled for definite periods of time not exceeding 1 year.

Service orders are those minor maintenance and new work jobs that will not exceed 16 man-hours or a total cost of \$200.

Individual job orders include maintenance, repair, and minor construction requirements that exceed the scope of SO's. These orders are classified as major or minor jobs depending upon the man-hours required.

For a review of the characteristics of the work categories, see Exhibit V-1.

The scope of work management can better be seen by reviewing chronologically the steps necessary to execute a major individual job order. This process is described in DAP 420-6, and shown graphically in Exhibit V-2, which presents the events required to initiate and complete a job order, showing the individuals who make up the work management team and the actions they take in the work management process.

C. Automated Work Management

During recent visits to Army installations, PRC has encountered post engineer work management systems supported by varying degrees of automation. Anticipating the eventual automation of work management by the Army, many installations have taken the initiative and have produced working systems.

These software systems are made up of families of separate programs each designed to perform a singular function such as generating cost figures per work order number or cost figures per shop.

The following is a list of some of the installations having automated work management capability:

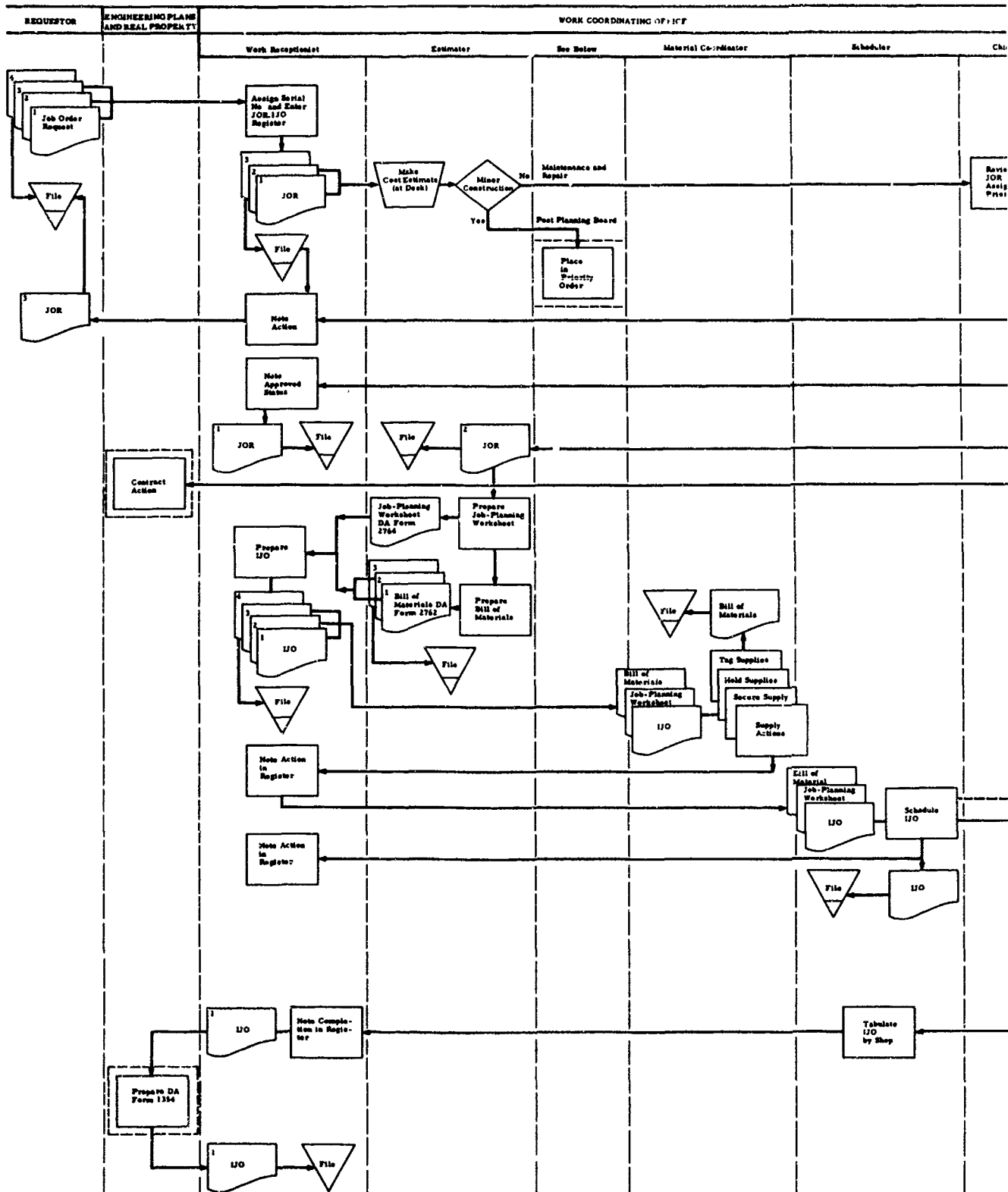
- Fort Huachuca, Arizona
- Red River Army Depot, Texas
- Cameron Station, Virginia
- Fort Detrick, Maryland

The Fort Huachuca Automated Work Management System, the most advanced encountered in the visits, operates on a third-generation computer, namely the Control Data Corporation (CDC) 6500. The system is written in COBOL and requires approximately 2 to 3 hours of key-punching daily to maintain the system input requirements. The impact

EXHIBIT V-1 CATEGORIES OF WORK

Acronym	Title	Definition	Approval Authority ¹	
			Maintenance Work	Minor New Construction
SOO	Standing Operation Order	No Limits. Work Must Be Constant and Predictable.	Post Engineer or Post Commander	As Required
SO	Individual Service Order	Less Than 16 MH or \$200	Work Order Clerk	Division Chief or Deputy Post Engineer
IJO	Individual Job Order	More Than 16 MH or \$200	Division Chief or Deputy Post Engineer	Up to \$500 - Post Engineer Above \$500 - Post Engineer
	Minor	25% of IJO MH's.		
	Major	75% of IJO MH's.		
	Project	Maintenance (AR 420-10) over \$5,000 Minor Construction (AR 415-35) \$500 to \$25,000 - OMA; \$25,000 to \$200,000 - Minor MCA	Up to \$200K - Post Commander	Up to \$10K - Post Commander Up to \$25K - Major Subordinate Commander

¹ These are typical; they can vary between commands and installations.



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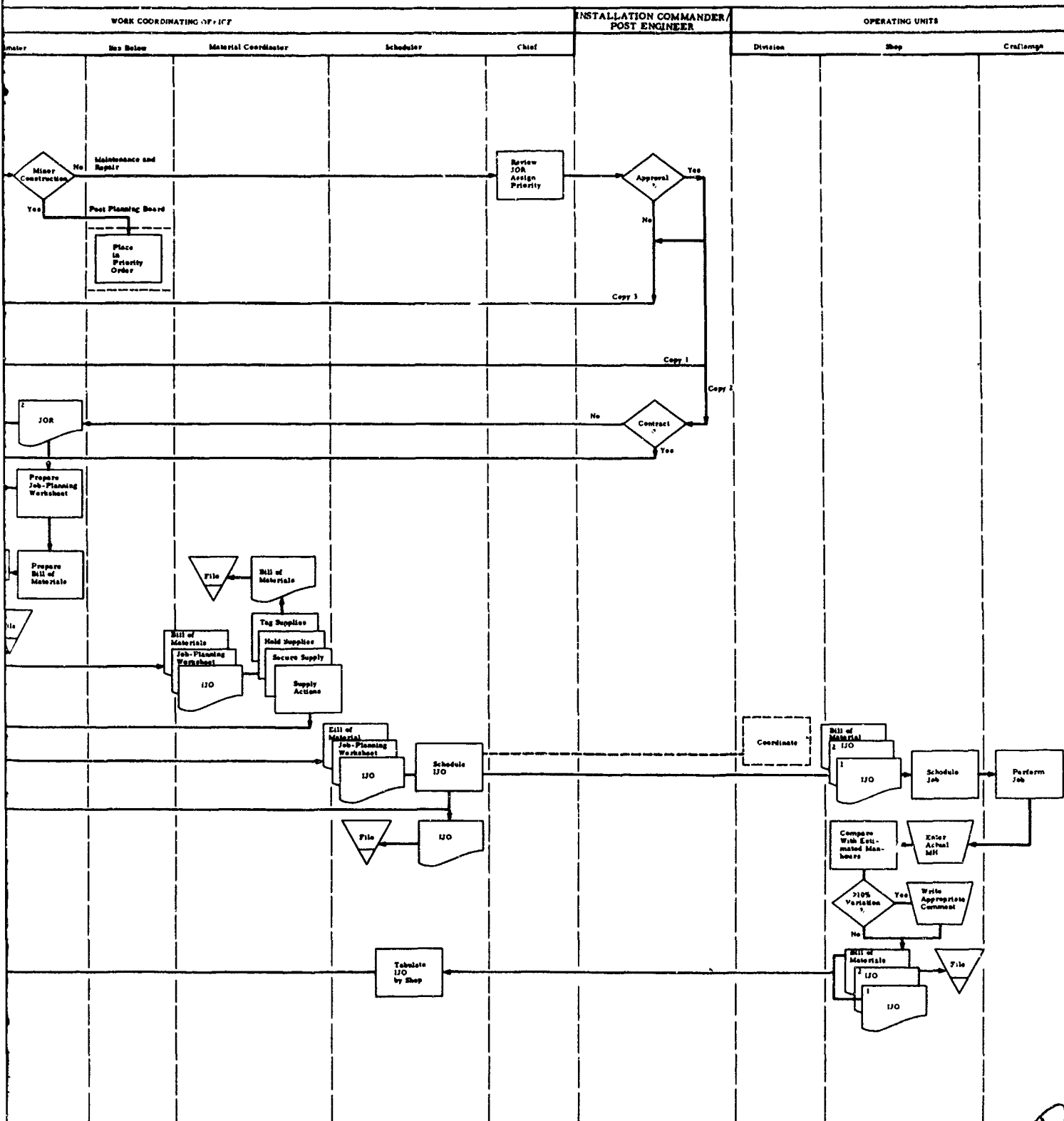


EXHIBIT V-2 PRESENT SYSTEM,
MAJOR INDIVIDUAL JOB ORDERS

B

of the system is evident when considering that a complete day's activity can be input to the computer while using only 3 to 4 minutes of processing time.

The Red River Army Depot Automated Work Management System--a portion of SPEED--operates on two second-generation computers, IBM 1410 and IBM 1401. The system is written in COBOL for the 1401 and in AUTOCODER for the 1410. The daily input necessary to update the system requires approximately 2 to 3 hours of keypunch activity. The system requires 4 hours of 1410 time and 7 hours of 1401 time in order to comply with its monthly responsibility.

The Army is not alone in its anticipation of the need for automating the post engineer's functions. The Air Force, in Air Force Manual 85-1, Resources and Work Force Management, presents a total programming concept for identifying RPMA requirements, time-phasing of work accomplishments to satisfy requirements, converting these to resources required, and continuous updating of programs. Total Programming is a part of the Base Engineer Automated Management System (BEAMS), which has been under development for several years.

D. Use of Systems Now Automated

Because existing automated work management systems were designed to meet (satisfy) local or special problems, no one of these systems appears suitable for Army-wide implementation. The Huachuca system runs on a CDC 6500 and is designed specifically to meet the needs of the Fort Huachuca Post Engineer. The Red River system runs on IBM 1401 and 1410 equipment and is designed as a small but integral part of a project for automating depot activities. The Fort Detrick system likewise centers around its own specific requirements, in this case preventive maintenance on a large number of motors, pumps, and fans used at this research and development (R&D) installation. The Cameron Station system lacks a scheduling capability. The Air Force Total Programming does not suit the automation requirements of the Army work management system or the RPMA system design presented in this document.

E. Capabilities of Automated Work Management

An automated work management system is capable of eliminating many tedious and time-consuming activities that are performed by the post engineer and his staff.

Presently, the work coordinating office expends a great deal of time in the simple task of conforming to DAP 420-6's requirement for a display of job status. Jobs awaiting materials or scheduling and those under execution are displayed on these status boards and are updated manually when the status of any job has changed. This activity requires adding, deleting, altering, and reordering the Plexiglas strips that contain the status of each post engineering activity. This information is also broken down by shop to display the shop's capability at any given time.

This activity, if automated, would reduce the amount of time required to maintain and display this information. Rather than a room covered by display boards, a small area would contain computer printouts of the status of post engineering activities.

This information would be updated daily since job status, under normal conditions, is not critical enough to warrant a more frequent update. If, however, the post engineer felt a more frequent job status printout was necessary, he could request outputs at any interval. This, of course, would require more frequent inputs.

Currently, the post engineering staff generates a preliminary schedule of activities on a weekly basis. This schedule is reviewed by the scheduling committee and from this review the schedule of activities for the coming week is made. This final schedule is generated after the committee has considered all the ramifications associated with each scheduled activity.

If the automated work management system were updated on a daily basis, the computer could generate the preliminary schedule. This preliminary schedule would then be used by the schedule committee to produce the final weekly schedule.

An automated work management system is a tool and not a substitute for the post engineer and his staff. All the mechanical processes

characteristic of the work management system are capable of being automated. The automated work management system should be designed in such a way that all command decisions and prerogatives reside with the commanders and post engineers.

The time saved by an automated work management system would enable the post engineer to allocate his personnel to other areas of responsibility. The post engineering activity includes a great deal of time for merely filling out reports. The automated work management system would reduce this time-consuming activity to a less tedious and more important report reviewing activity.

F. Work Management/RPMA System Interface

The RPMA system design presented in this document is a vertical reporting system with the capability of extending visibility of installation activities and requirements up through the echelons to HQ DA. On the other hand, the work management system, which is not a part of the RPMA system design, is a horizontal system designed to satisfy the post engineer's requirements for an efficient and effective installation management activity. Since the RPMA vertical system must interface with the work management system, the interface must be flexible enough to enable data flow in either direction between these systems. Furthermore, the interface must be flexible enough to adapt to the varying degrees of automation which exist at different installations. For example, Fort Bliss has a purely manual work management system while Fort Huachuca has an advanced automated work management system. Most of the systems at other installations fall somewhere between these extremes.

Because of the massive size of many installations and the amount of data generated by a large post, it is quite apparent that at these installations work management must become automated; on the other hand, because of the small size of many installations, the Army might determine that it would be economically unrealistic to implement an automated work management capability. A flexible interface would therefore facilitate an Army-wide RPMA system that would be compatible

with each installation's work management system. The only restriction that the RPMA system would place upon the work management system at each installation is that it must contain all of the inputs required by the RPMA system.

Exhibit V-3 depicts the interface between a horizontal work management system and the vertical character of the RPMA system design. The interface lies between the work management data and the RPMA system design reports. The primary interface medium will be the work management data file. This file is a family of data elements and data items that are collected by the work management function, contained in a logical order and easily accessible. The term "file" does not presuppose an automated work management system. The information and data required by the file can be stored in either a file cabinet or a random access device.

The term work management data file is new, but its concept currently exists at the installation. This file includes data and information collected by the post engineering work management activity. From this existing collection of data the post engineer obtains the necessary inputs to generate job status boards, control charts, and the specialized reports his activity is called upon to generate.

As can be seen in Exhibit V-4, the work management data file contains those inputs necessary to "... the application of sound principles and procedures in planning, estimating, scheduling, recording and evaluation. . . " as prescribed by DAP 420-4, 420-5, and 420-6. This data file does not contain all the factors necessary to generate the IFS-RPMA reports, nor does it contain all the factors needed to generate the boards, charts, or special reports. Financial guidance, functional guidance, command prerogative, and other factors that are not contained within the work management data file must be introduced by the managers in order to generate the desired outputs. Exhibit V-4, therefore, shows that these outputs will receive data and information from the data file, but does not show management decisions needed to generate the outputs.

The work management systems encountered during PRC visits to various installations report data in sufficient detail to satisfy most of

DA

MAFC

MSC

RPMA Design
Reports

Installation
Work
Management

URR

FURR

SAWP

MYRR

PYPR

Work Management Data File

EXHIBIT V-3 RPMA/WORK MANAGEMENT INTERFACE

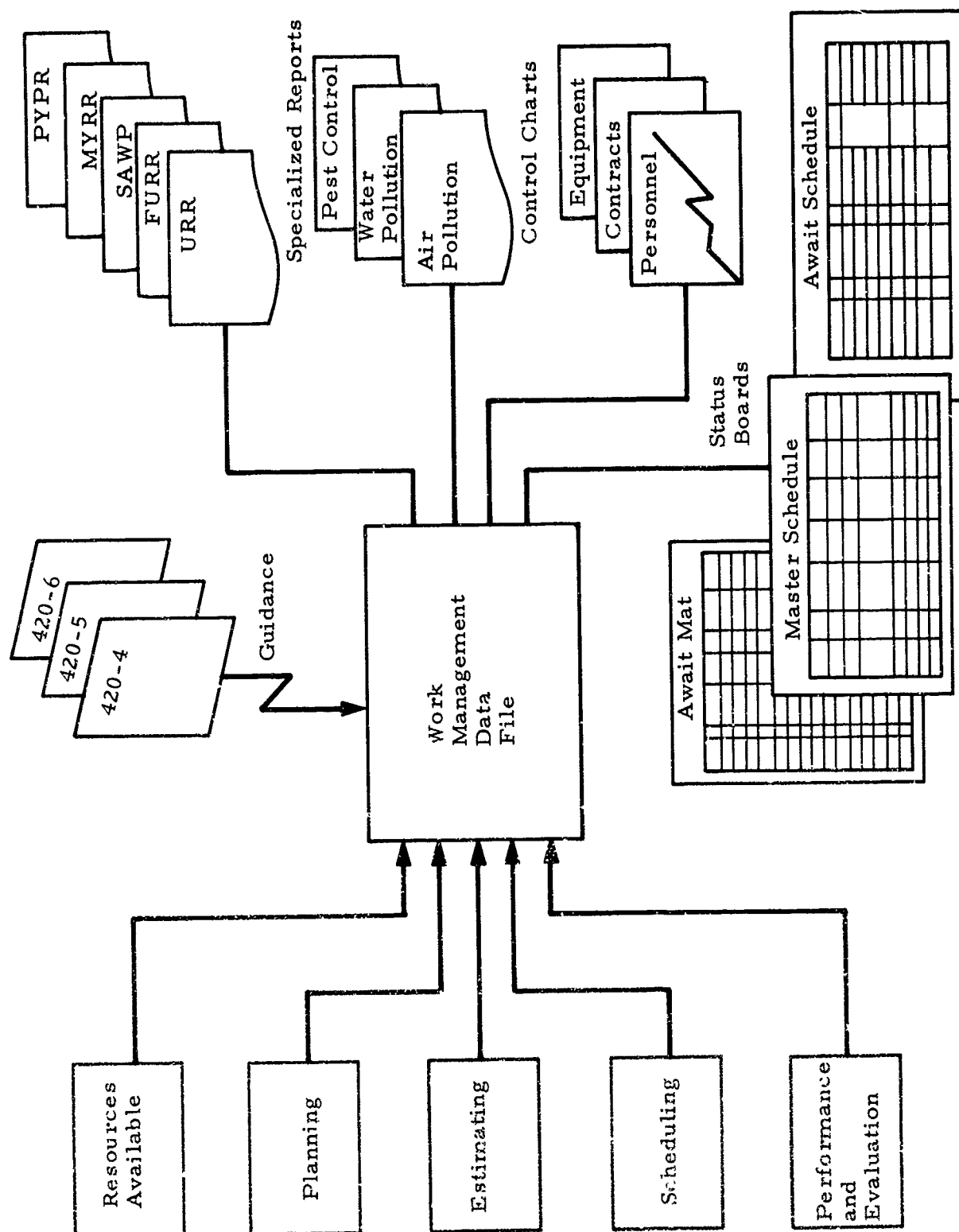


EXHIBIT V-4 WORK MANAGEMENT DATA FILE

the requirements of the RPMA system design. As stated in the preceding sections, the RPMA system design is introducing new requirements that must be reflected in the current work management system. These requirements are either not found in the proper form or are not presently reported by the installation's post engineering activity.

To reduce the difficulties that might be encountered by the RPMA system when extracting data from the work management data file, the work management system should gather its data with the following requirements for data in mind:

- Groups of similar facilities
- Facility components
- Facility condition
- Priority
- Performance and coverage (see Appendix E)

When the data gathered by the work management system are compiled according to these data requirements and stored in the data file in this fashion, the RPMA system will be capable of extracting all the information it needs from the work management data file and will not need to modify the data received.

As illustrated by Exhibit V-5, the work management data file is a file that exists outside the IFS data base. The work management system is not part of the IFS design and, therefore, is not included in this design effort. The IFS data base will contain all data characteristic of the IFS design and will be structured to interface with the work management data file. For example, the assets data file will contain facility condition information and groups of similar facilities. These information elements will be called upon by the work management system and will be used in the work management data file.

1. Work Management Interface With Planning and Programming

Work management is a continuous, not a cyclic, activity. Although it produces the greatest quantity of data during the execution and review functions of the RPMA system design, as shown in Exhibit V-6, the work management data file is also a major contributor to the planning and programming functions (Exhibit V-7).

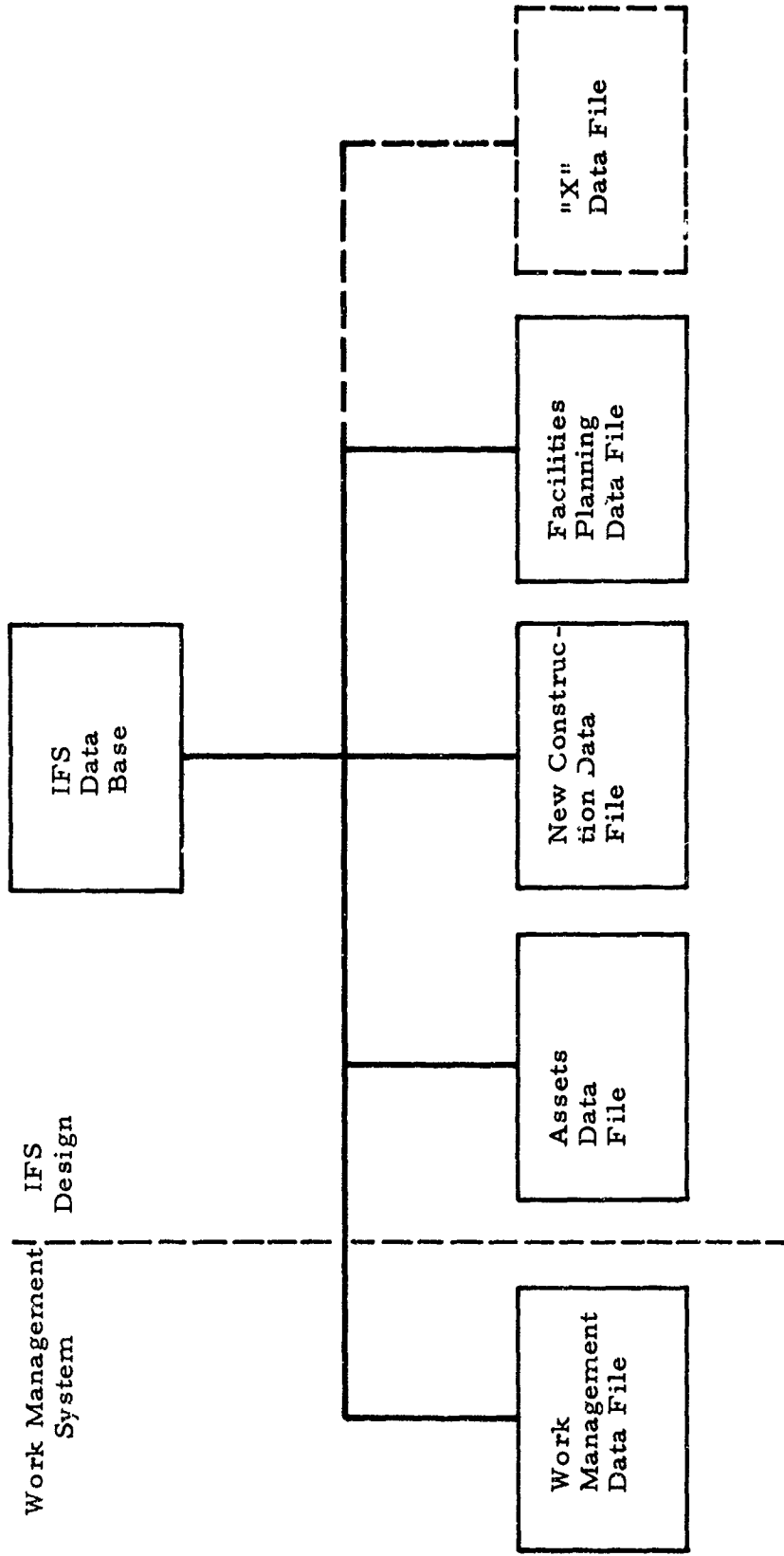
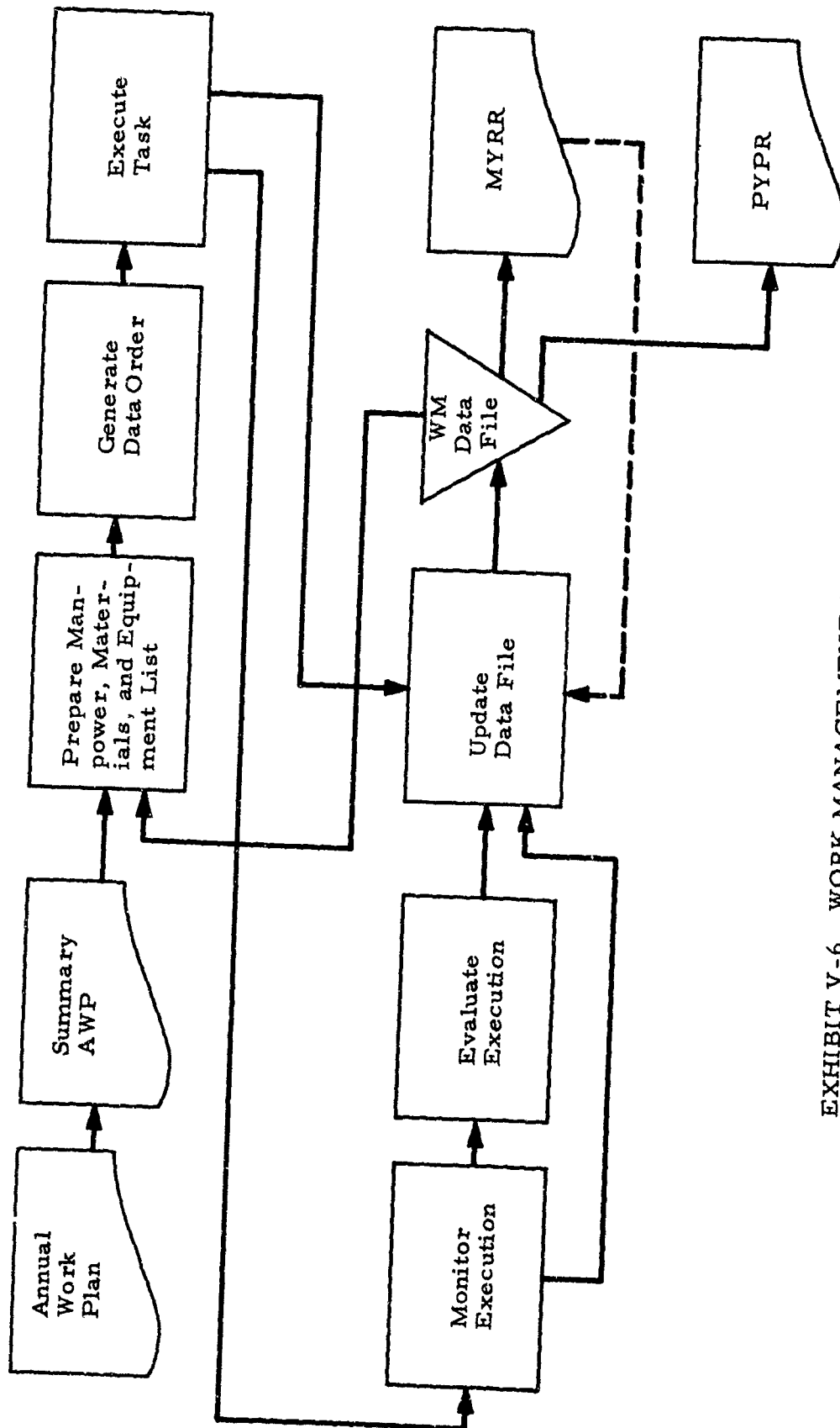


EXHIBIT V-5 RELATIONSHIP OF IFS DATA BASE TO WORK
MANAGEMENT DATA FILE



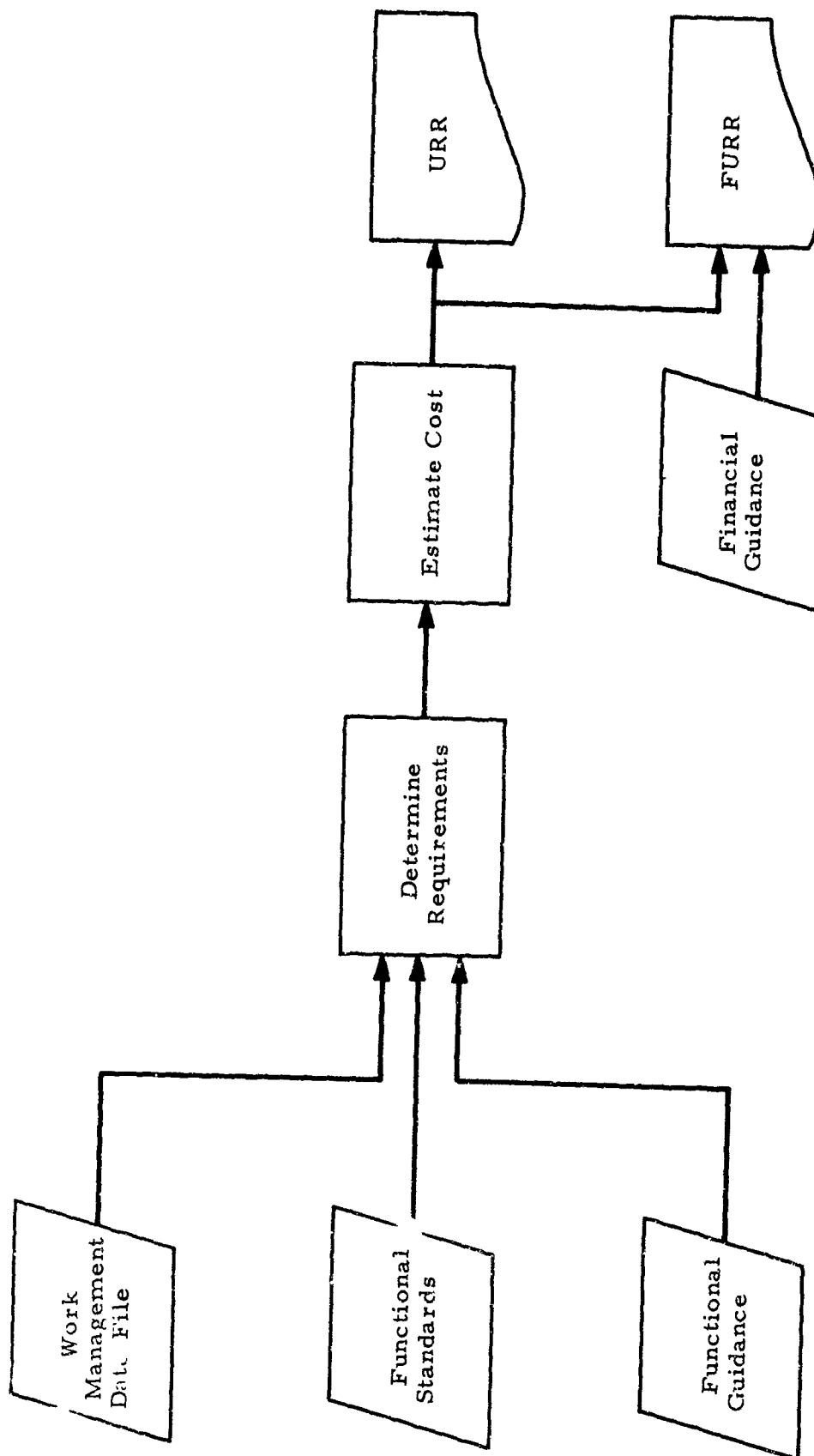


EXHIBIT V-7 WORK MANAGEMENT INTERFACE WITH RPMA PLANNING AND PROGRAMMING FUNCTIONS

Functional standards, functional guidance, and work management data, from which installation requirements are determined, are input to the RPMA vertical system. Estimating skills, which are part of the work management system, are then used to calculate the cost of RPMA requirements. This information is used to generate the URR. The requirements cost, along with financial guidance, is input to the RPMA vertical system to generate the FURR. Upon completion of the generation of the URR and FURR, information will flow back into the work management data file to update the file. Since the approved URR and FURR are generated as a result of manmade decisions, the work management data file must be updated to reflect these external decisions.

2. Work Management Interface With Execution and Review

The installation AWP (a product of the work management system) and SAWP (a product of the RPMA system) are generated during the budgeting phase of the PPBER cycle. From these documents, SOO's as well as provisions for service and individual job orders are derived. To support the execution of these work requirements, lists are generated which show the manpower, equipment, and materials available to the post engineer for performing outstanding work requirements.

Work orders, which allocate the resources available against the outstanding work requirements, are generated and are assigned priorities according to the mission objectives of the installation. The work orders are eventually put into execution and are monitored daily. The data gathered by the daily monitoring of the performance of the job are used to update the work management data file. To assist in the evaluation of the performance of the work, the work management system contains an up-to-date history of each task.

During execution, the work management data file is continually updated. Complete and current detailed information on the post engineer's activities is particularly necessary when the MYRR is being prepared. To comply with the reprogramming requirements reported

by the MYRR, current and up-to-date status and complete scope of post engineering activities are required.

The PYPR is a review document that relies upon the work management data file for historical information. The daily data used to monitor and evaluate work activities lends itself to the input requirements of the PYPR.

G. Summary

Exhibit V-8 graphically depicts the relationship between the work management system and the RPMA system design. The RPMA system, represented by the RPMA management reports, is a vertical system. The work management system is a horizontal system that exists at the installation. The work management system generates data that are coupled with manmade decisions to produce the information for the URR, FURR, and SAWP. To reflect the effect of these manmade decisions, the URR, FURR, and SAWP should input information to the work management system. These input sources correspond with the planning, programming, and budgeting functions of the RPMA system design. During the execution function, as depicted by the MYRR, the work management system should be updated daily to give the post engineer and post commander visibility of the impact of installation expenditures compared with the installation's mission objectives. During the review function, associated with the PYPR, the work management system contains all the historical information necessary to review and evaluate the installation's performance compared to its objectives.

H. Conclusion

The RPMA vertical system can interface with existing work management systems, either manual or automated. This capability will allow the Army to implement the RPMA system design presented in this document manually without having to wait for the introduction of Army-wide automated work management.

However, it is recommended that standardized automated work management should be developed, designed, and implemented as soon

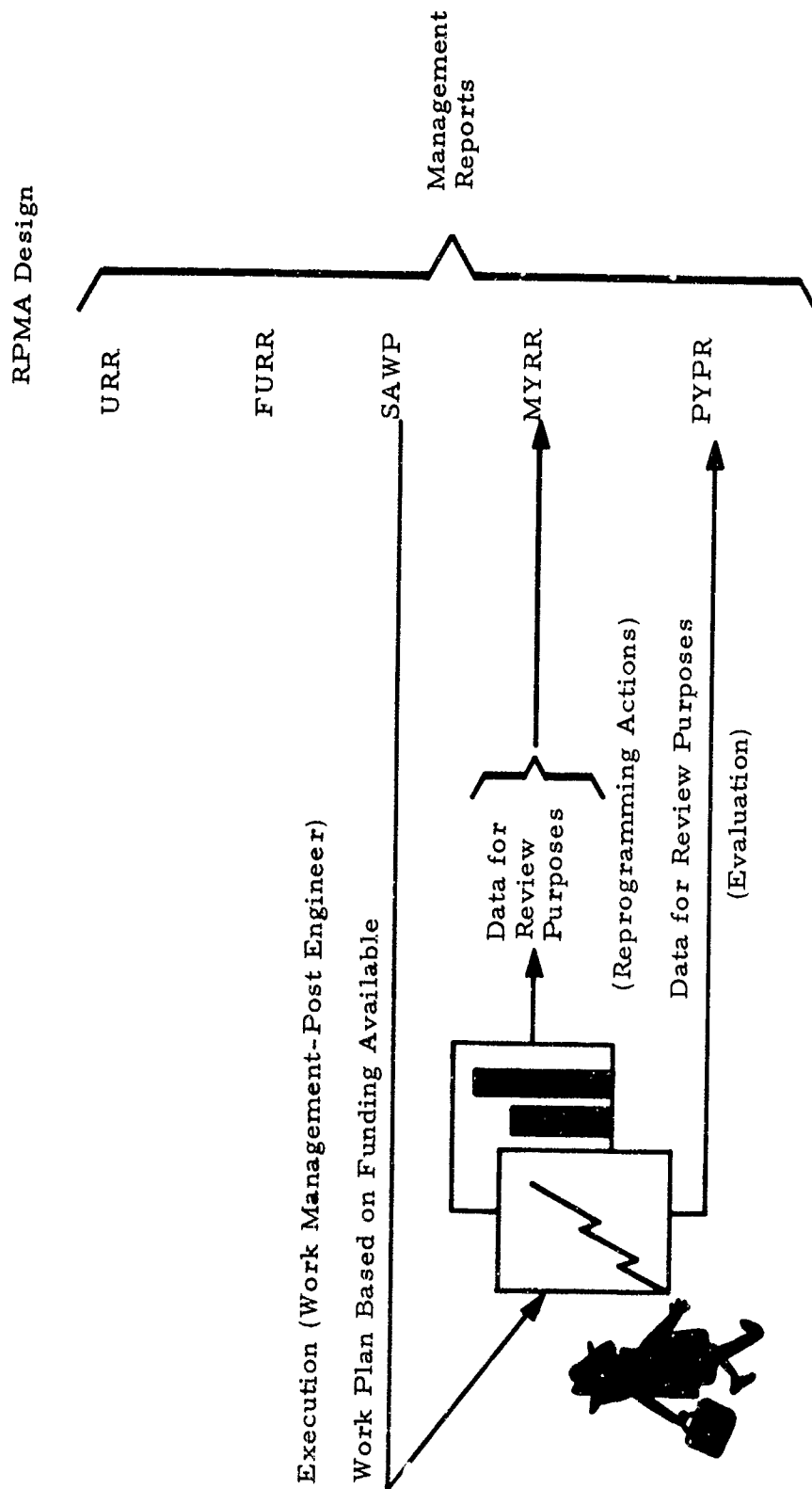


EXHIBIT V-8 INTERFACE RPMA DESIGN AND WORK MANAGEMENT

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V-20

as possible. An automated work management system would enhance the efficiency of data storage and data transfer between the work management system and the RPMA system.

APPENDIX A

GLOSSARY

A. Abbreviations

ACSFOR	Assistant Chief of Staff for Force Development
ADP	Automatic Data Processing
AFDP	Army Force Development Plan
AIF	Army Industrial Fund
AMC	Army Materiel Command
AMC I&SA	Army Materiel Command Installations and Services Agency
AMC I&SD	Army Materiel Command Installations and Services Directorate
AOB	Approved Operating Budget
AR	Army Regulation
ASA (I&L)	Assistant Secretary of the Army (Installations and Logistics)
AS&R	Assets Storage and Retrieval
ASOP	Army Strategic Objectives Plan
AWP	Annual Work Plan
BEAMS	Base Engineer Automated Management System
BEMAR	Backlog of Essential Maintenance and Repair
BER	Budget Execution Review
BIS	Building Information Schedule
BY	Budget Year
CAUO	Command Analysis of Utilities Operations
CDC	Control Data Corporation
COA	Comptroller of the Army
COB	Command Operating Budget
CONARC	Continental Army Command
CONUS	Continental United States
CRRC	Construction Requirements Review Committee

DA	Department of the Army
DCSLOG	Deputy Chief of Staff for Logistics
DCSOPS	Deputy Chief of Staff for Military Operations
DCSPER	Deputy Chief of Staff for Personnel
DFSR	Detailed Functional System Requirements
DGM	Defense Guidance Memorandum
DOD	Department of Defense
DODI	Department of Defense Instruction
DPM	Draft Presidential Memorandum
EDP	Electronic Data Processing
FAS	Force Accounting System
FC&CCC	Facility Classes and Construction Categories Code
FPM	Facility Planning Module
FURR	Financed/Unfinanced Requirements Report
FY	Fiscal Year
FYDP	Five-Year Defense Program
GOCO	Government Owned, Contractor Operated
GOGO	Government Owned, Government Operated
GSA	General Services Administration
HQ	Headquarters
HQ DA	Headquarters, Department of the Army
IFS	Integrated Facilities System
IJO	Individual Job Order
JAG	Judge Advocate General
JCS	Joint Chiefs of Staff
JSOP	Joint Strategic Objectives Plan
LIN	Line Item Number (Permanent)
LRWP	Long-Range Work Plan
MAFC	Major Army Field Command
MCA	Military Construction, Army
MDW	Military District of Washington
MORP	Maintenance and Operation of Real Property

MOT	Military Ocean Terminal
MRPF	Maintenance of Real Property Facilities
MSC	Major Subordinate Command
MTMTS	Military Traffic Management and Terminal Service
MTOE	Modified Table of Organization and Equipment
MYRR	Mid-Year Review Report
OA	Operations, Army
ODCSLOG	Office of the Deputy Chief of Staff for Logistics
ORMO	Operating Resources Management Office
OSA	Office of the Secretary of the Army
OSD	Office of the Secretary of Defense
OTSG	Office of the Surgeon General
PBAC	Program Budget Advisory Committee
PBG	Program Budget Guidance
PCR	Program Change Request
PE	Post Engineer
PPBER	Planning, Programming, Budgeting, Execution, and Review
PRC	Planning Research Corporation
PYPR	Prior-Year Performance Report
PYR	Prior-Year Report
RDTE	Research, Development, Test, and Evaluation
RMS	Resource Management System
RPI	Real Property Inventory
RPMA	Real Property Maintenance Activities
RPMAO	Real Property Maintenance Activities Office
SAWP	Summary Annual Work Plan
SCS	Stationing Capability System
SIGMALOG	Simulation and Gaming Methods for Analysis of Logistics
SO	Service Order
SOO	Standing Operating Order
SPPC	Stationing Plan for Permanent Construction

SRC	Standard Requirements Code
STRAF	Strategic Army Forces
STRATCOM	Strategic Communications Command
TAABS	The Automated Army Budget System
TAADS	The Army Authorization Document System
TAF	Tabulation of Existing and Required Facilities
TAG	The Adjutant General
TDA	Table of Distribution and Allowances
TDR	Technical Data Report
TLIN	Temporary Line Item Number
TOE	Table of Organization and Equipment
TSG	The Surgeon General
TY	Target Year
UIC	Unit Identification Code
U/M	Unit of Measure
URE	Unconstrained Requirements Estimate
URR	Unconstrained Requirements Report
USACDC	U.S. Army Combat Development Command
USASA	United States Army Security Agency
USMA	United States Military Academy

B. Terms

Data Code--Number, letter, character, symbol, or any combination thereof used to represent a data item. For example, the data codes "E6," "03," and "06" might be used to represent the data items of sergeant, captain, and colonel under the data element MILITARY PERSONNEL GRADE (AR 18-10).

Data Element--Information unit grouping that has a unique meaning and subcategories (data items) of distinct units or values. Examples of data elements are military personnel grade, sex, race, geographic location, and military unit (AR 18-10).

Data Item--Subunit of descriptive information or value classified under a data element. For example, the data element MILITARY PERSONNEL GRADE contains data items such as sergeant, captain, and colonel (AR 18-10).

Data Use Identifier--The name given to the use of a data element in a data system. For example, the data element "State," when used in a system, may be assigned a data use identifier, "State of birth" or "State of residence" (AR 18-10).

Detailed Functional System Requirements (DFSR)--The specification of information furnished at each echelon and its use, reflecting the vertical integration of information to support management activities at all echelons. (See DA Pamphlet 18-5.)

External File--An organized collection of information maintained by an organization not part of the IFS.

Function--The primary division of an IFS management area's activities at an echelon. It comprises an operation or operations that are related in terms of their processing logic and data inputs and outputs; they can be manual, automated, or both.

Functional Design--A description of the system in terms of its impact on and utility to the system user. Included in the description are data sources, inputs, outputs, processing logic, and interfaces both internal and external to the system. The functional design is a product of the system design phase of IFS development.

Functional Management Area--Synonymous with "Management Area."

IFS Data Base--A term designating all the data required by IFS, as structured at each activity where IFS is operative, in manual or automated form.

IFS File--A structured collection of data related to a specific subject or application (e. g., RPMA file), maintained within the IFS data base.

Management Area--A logical grouping of related functions encompassed by the Integrated Facilities System. The IFS is divided into five management areas:

- Assets accounting
- Facility planning
- New construction
- Real property maintenance activities
- Facilities management

Modular Area--Synonymous with "Module."

Module--A logical grouping of related management activities. The IFS was originally divided into five modules for development purposes:

- Assets storage and retrieval
- Facility planning
- New construction
- Real property maintenance activities
- Facility condition and readiness

Operation--A subdivision of a function. Defined by its inputs, outputs, processing logic that relates the outputs and inputs, and its relationship to other operations of the same function. Inputs and outputs are defined in terms of the data elements contained. Processing can be manual, automatic, or both.

Systems Analysis--Review of organizational goals and missions, existing functions, operations, and systems, and internal and external interfaces for the purpose of defining:

- The functions that should be accomplished to achieve the mission and goals
- The information required to support/perform the delineated functions
- The process required to produce the outputs required by the functions

System Definition--The phase of IFS development that had as its purposes:

- Identification of all significant facility management functions
- Relating the identified facility management functions to Army echelons and organizations
- Identification of existing Army systems related to the identified management functions
- Relating the identified management functions to appropriate IFS modules
- Providing sufficient initial guidance in the area of each module to permit initiation of a system analysis effort, per module

System Design--The phase of IFS development that results in a functional design of each module and its subsystems (functions and operations). Functional flow charts for each of the module subsystems are drawn to depict the data sources, inputs, processing logic, and outputs, as well as the interfaces both internal and external to the module.

System Specification--The detailed specification of the system design.

Several types of quantitative data are developed, for example:

- File volumes, usage, and content characteristics
- Volumetric and rate data tabulations
- Estimation of typical peak load conditions
- Tabulation of physical and logical information characteristics pertinent to conversion to automated form, storage processing and retrieval
- Input and output specifications defined in terms of media, format, sources, and processing modes, i.e., real-time versus batch processing

APPENDIX B

DATA ELEMENTS

This appendix lists the data elements and data use identifiers which were current at the time the draft of this document was published in December 1969. Since that time, the task of defining data elements, data items, and data use identifiers for the IFS has been accomplished by the DFSR team, and the list has been in a constant state of development. Therefore, the list presented in this appendix does not reflect the latest thinking. It is not being changed at this time, however, since the overall list for the IFS will be published with the DFSR.

For the purpose of this appendix, each data element occurs in conjunction with a number of data use identifiers. For example, the data element "contract dollar requirement" appears in "contract dollar requirement for fire prevention and protection," "contract dollar requirement for treated sewage operations," and "contract dollar requirement for maintenance of grounds." In these examples, "fire prevention and protection," "treated sewage operations," and "maintenance of grounds" are data use identifiers.

Data use identifiers in this appendix are grouped into numbered classes (see list below). The classes that apply to a data element are identified on the data element fact sheet. When a class is so identified, the data element on that sheet occurs with each data use identifier listed as a member of the class involved. In the example above, we might define "DUI class 1" to contain "fire prevention and protection," "treated sewage operations," and "maintenance of grounds." If the data element sheet for "contract dollar requirement," then, contains the notation "DUI class 1," we know that the quantities "contract dollar requirement for fire prevention protection," "contract dollar requirement for treated sewage," and "contract dollar requirement for maintenance of grounds" appear in the RPMA functional design document.

The same data use identifier may appear in several classes.

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B-1a

Some of the definitions in the data element fact sheets are incomplete. It is felt, however, that the meanings of all data elements become quite clear when the data elements are placed in the context of the particular sections of the RPMA reports in which they are used.

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B 2

1. CLASSES OF DATA USE IDENTIFIERS

PRC R-1209
B-3

Class 1

Functional category 09:

Financed
Unfinanced
Total

Functional category 12:

Financed
Unfinanced
Total

Class 2

Functional category 09:

SAWP
Actual/reprogrammed

Functional category 10:

SAWP
Actual/reprogrammed

Functional category 11:

SAWP
Actual/reprogrammed

Functional category 12:

SAWP
Actual/reprogrammed

Class 3

Functional category 10

Functional category 11

Class 4

Functional category 09:

Total

Functional category 10:

Active
Inactive
Total

Functional category 11:

Total

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B-4

Functional category 12:

Active
Inactive
Total

Class 5

Functional category 09:

Active
Inactive
Total

Functional category 10:

Active
Inactive
Total

Functional category 11:

Active
Inactive
Total

Functional category 12:

Active
Inactive
Total

Class 6

Functional category 09:

Water service

Financed
Unfinanced
Total

Sewage service

Financed
Unfinanced
Total

Electric service

Financed
Unfinanced
Total

Heating service

Financed
Unfinanced
Total

Class 7

Functional category 10:

Surface improvement

Financed
Unfinanced
Total

Utilities

Financed
Unfinanced
Total

Inactive

Financed
Unfinanced
Total

Class 8

Functional category 11:

Projects \$0-\$10,000

Financed
Unfinanced
Total

Projects \$10,000-\$25,000

Financed
Unfinanced
Total

Total

Financed
Unfinanced
Total

Class 9

Functional category 09:

Water service

First quarter
Second quarter
Third quarter
Fourth quarter
Total

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Sewage service

First quarter
Second quarter
Third quarter
Fourth quarter
Total

Electrical service

First quarter
Second quarter
Third quarter
Fourth quarter
Total

Heating service

First quarter
Second quarter
Third quarter
Fourth quarter
Total

Class 10

Functional category 10:

Surface improvements

First quarter
Second quarter
Third quarter
Fourth quarter
Total

Utilities

First quarter
Second quarter
Third quarter
Fourth quarter
Total

Inactive

First quarter
Second quarter
Third quarter
Fourth quarter
Total

Total

First quarter
Seccond quarter
Third quarter
Fourth quarter
Total

Class 11

Functional category 11:

Projects \$0-\$10,000

First quarter
Second quarter
Third quarter
Fourth quarter
Total

Projects \$10,000-\$25,000

First quarter
Second quarter
Third quarter
Fourth quarter
Total

Class 12

Functional category 12:

Fire prevention

First quarter
Second quarter
Third quarter
Fourth quarter
Total

Refuse handling

First quarter
Second quarter
Third quarter
Fourth quarter
Total

Entomology

First quarter
Second quarter
Third quarter
Fourth quarter
Total

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Custodial

First quarter
Second quarter
Third quarter
Fourth quarter
Total

Class 13

Functional category 09:

Water service
Purchased water
Filtered water
Unfiltered water
Sewage service
Purchased sewage
Treated sewage
Untreated sewage
Industrial waste
Electrical service
Purchased electrical energy
Housing type installation
Depot type installation
Cold storage/air conditioning
Cold storage
Air conditioning (over 25 tons)
Heating
Boiler plant
Boiler plant, gas
Boiler plant, coal
Boiler plant, oil
Heating plant
Heating plant, gas
Heating plant, coal
Heating plant, oil
Coal handling
Purchased steam and hot water
Other utility operations

Class 14

Functional category 10:

Buildings

Permanent
Temporary
Total

Buildings, troop housing

Permanent
Temporary
Total

Buildings, family housing

Permanent
Temporary
Total

Buildings, community

Permanent
Temporary
Total

Buildings, operational

Permanent
Temporary
Total

Buildings, training

Permanent
Temporary
Total

Buildings, maintenance

Permanent
Temporary
Total

Buildings, production

Permanent
Temporary
Total

Buildings, RDT&E

Permanent
Temporary
Total

Buildings, storage

Permanent
Temporary
Total

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Buildings, medical

Permanent
Temporary
Total

Buildings, administration

Permanent
Temporary
Total

Buildings, other

Permanent
Temporary
Total

Surface improvements

Roads

Airfield pavements

Parking, open storage, walks

Railroads

Bridges

Operational structures

Waterfront facilities

Waterways

RDT&E facilities

Miscellaneous structures

Grounds

Improved grounds

Semi-improved grounds

Ranges

Unimproved grounds

Wildlife conservation grounds

Utilities

Water systems

Filtration and treatment plants

Pumping plants

Distribution mains and services

Sewage systems

Treatment plants

Collection systems
Electric systems
Generating plants
Substations and switching stations
Distribution systems
Distribution transformers
Exterior lighting
Heating systems
High pressure boiler plants (over 3.5 million BTU/hr)
Heating plants (over 3.5 million BTU/hr)
Heating plants (under 3.5 million BTU/hr)
Other heating support
Refrigeration and air conditioning
Air conditioning
Air conditioning plants
Cold storage plants
Refrigeration plants
Other utilities
Food service equipment
Mechanical ventilation
Evaporative cooling
Dehumidification equipment
Compressed air
Liquid fuel dispensing facilities
Swimming pools
Fire and other alarm systems
Other

Class 15

Functional category 11:

Projects \$0-\$10,000

Identified
Unplanned
Total

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B-12

Projects, \$10,000-\$25,000

Identified
Unplanned
Total

Class 16

Functional category 09:

Water service
Electric service
Other utility operations

Class 17

Functional category 10:

Total
Buildings
Troop housing buildings
Total

Barracks
Permanent
Temporary
Total

Mess halls
Permanent
Temporary
Total

Other troop housing
Permanent
Temporary
Total

Family housing buildings
Total

Community buildings
Total

Personnel community buildings
Permanent
Temporary
Total

Recreational community buildings

Permanent
Temporary
Total

Operational buildings

Permanent
Temporary
Total

Training buildings

Permanent
Temporary
Total

Maintenance buildings

Permanent
Temporary
Total

Production buildings

Permanent
Temporary
Total

RDT&E buildings

Permanent
Temporary
Total

Storage buildings

Total

Liquid storage buildings

Permanent
Temporary
Total

Ammunition storage buildings

Permanent
Temporary
Total

Cold storage buildings

Permanent
Temporary
Total

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Covered storage buildings

Permanent
Temporary
Total

Medical

Total

Hospitals

Permanent
Temporary
Total

Other medical buildings

Permanent
Temporary
Total

Administrative buildings

Permanent
Temporary
Total

Other buildings

Total

Class 18

Functional category 09:

Samples, water service, 3 positive portions
10-ml portions positive, water service

Class 19

Functional category 09:

Power failures, electric service
Refrigerant charge
Degree days 65° base
Degree days 50° base
Fuel consumed
Heated space

Class 20

Functional category 12:

Refuse handling

Refuse collection
Refuse disposal
Miscellaneous
Special maintenance
Purchased local maintenance
Expenses for maintenance and service supervision
Master planning

Class 21

Functional category 11:

Projects \$0-\$10,000

Identified
Unplanned
Total

Projects \$10,000-\$25,000

Identified
Unplanned
Total

Identified projects

Total

Unplanned projects

Total

Grand total

Class 22

Functional category 09:

Water service
Sewage service
Electric service
Heating service

Class 23

Functional category 10:

Surface improvement
Utilities
Inactive
Total

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Class 24

Functional category 12:

Fire prevention

Refuse handling

Entomology

Custodial

Class 25

Functional category 11:

Projects \$0-\$10,000

Projects \$10,000-\$25,000

Total

Class 26

Functional category 12:

Fire prevention

Financed

Unfinanced

Total

Refuse handling

Financed

Unfinanced

Total

Entomology

Financed

Unfinanced

Total

Custodial

Financed

Unfinanced

Total

Class 27

Functional category 09

Functional category 12

Class 28

Total

Class 29

Projects under \$10,000
Total

Class 30

Projects over \$10,000
Program I
Program element 2
Program element 4
Program element 5
Program V
Program element 1
Program element 3

Class 31

Functional category 09:
Cold storage/air conditioning
Other utilities
Total

Class 32

Functional category 10:
Buildings
Grounds

Class 33

Functional category 12:
Snow removal and ice alleviation
Miscellaneous
Inactive
Total

Class 34

Functional category 10:
Financed
Unfinanced
Total

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B-18

Functional category 11:

Financed
Unfinanced
Total

Class 35

Financed
Unfinanced
Total

Class 36

Functional category 09:

Cold storage/air conditioning

Financed
Unfinanced
Total

Other utilities

Financed
Unfinanced
Total

Total

Financed
Unfinanced
Total

Class 37

Functional category 10:

Buildings

Financed
Unfinanced
Total

Grounds

Financed
Unfinanced
Total

Class 38

Functional category 12:

Snow removal and ice alleviation

Financed
Unfinanced
Total

Miscellaneous

Financed
Unfinanced
Total

Inactive

Financed
Unfinanced
Total

Total

Financed
Unfinanced
Total

Class 39

Functional category 12:

Snow removal and ice alleviation

First quarter
Second quarter
Third quarter
Fourth quarter
Total

Miscellaneous

First quarter
Second quarter
Third quarter
Fourth quarter
Total

Inactive

First quarter
Second quarter
Third quarter
Fourth quarter
Total

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B-20

Total

First quarter
Second quarter
Third quarter
Fourth quarter
Total

Class 40

Functional category 10:

Buildings

First quarter
Second quarter
Third quarter
Fourth quarter
Total

Grounds

First quarter
Second quarter
Third quarter
Fourth quarter
Total

Class 41

Functional category 09:

Cold storage/air conditioning

First quarter
Second quarter
Third quarter
Fourth quarter
Total

Other utilities

First quarter
Second quarter
Third quarter
Fourth quarter
Total

Total

First quarter
Second quarter
Third quarter
Fourth quarter
Total

Class 42

Functional category 09:

Water service

4 months
6 months
9 months
12 months
Total

Sewage service

4 months
6 months
9 months
12 months
Total

Electric service

4 months
6 months
9 months
12 months
Total

Heating service

4 months
6 months
9 months
12 months
Total

Class 43

Functional category 09:

Cold storage/air conditioning

4 months
6 months
9 months
12 months
Total

Other utilities

4 months
6 months
9 months
12 months
Total

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B-22

Class 44

Functional category 10:

Buildings

4 months
6 months
9 months
12 months
Total

Grounds

4 months
6 months
9 months
12 months
Total

Class 45

Functional category 10:

Surface improvements

4 months
6 months
9 months
12 months
Total

Utilities

4 months
6 months
9 months
12 months
Total

Inactive

4 months
6 months
9 months
12 months
Total

Class 46

Functional category 11:

Projects \$0-\$10,000

4 months
6 months
9 months
12 months
Total

Projects \$10,000-\$25,000

4 months
6 months
9 months
12 months
Total

Class 47

Functional category 12:

Fire prevention

4 months
6 months
9 months
12 months
Total

Refuse handling

4 months
6 months
9 months
12 months
Total

Entomology

4 months
6 months
9 months
12 months
Total

Custodial

4 months
6 months
9 months
12 months
Total

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B-24

Class 48

Functional category 12:

Snow removal and ice alleviation

4 months
6 months
9 months
12 months
Total

Miscellaneous

4 months
6 months
9 months
12 months
Total

Inactive

4 months
6 months
9 months
12 months
Total

Class 49

Functional category 09:

Purchased water
Purchased sewage disposal
Purchased electric energy
Purchased steam and hot water

Class 50

Functional category 09:

Filtered water
Unfiltered water
Treated domestic sewage
Untreated sewage
Industrial wastes
Electricity generating plants

Class 51

Functional category 09:

Filtered plant operations
Filtered pumping operations
Unfiltered water, chemical treatment
Unfiltered water, pumping operations
Electrical

Class 52

Functional category 09:

Sewage service
Heating

Class 53

Functional category 09:

Secondary plant operations
Secondary pumping operations
Primary plant operations
Primary pumping operations
Septic tanks
Oxidation ponds
Industrial waste, treatment operations
Industrial waste, cooling water

Class 54

Functional category 09:

Electrical motors
Electrical distribution transformers

Class 55

Functional category 09:

Fuel consumed
Power failures
Refrigerant charge

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Class 56

Functional category 09:
Electrical services

Class 57

Functional category 09:
Electrical services, housing type installation
Electrical services, depot type installation

Class 58

Functional category 09:
Cold storage and air conditioning plants

Class 59

Functional category 09:
Air conditioning plants
Air conditioning plants, over 25 tons
Cold storage plants

Class 60

Functional category 09:
Heating and boiler plants
Coal handling

Class 61

Functional category 09:
Boiler plants, over 3.5 million BTU
Boiler plants, over 3.5 million BTU, gas fired
Boiler plants, over 3.5 million BTU, oil fired
Boiler plants, over 3.5 million BTU, coal fired
Heating plants, over 3.5 million BTU
Heating plants, over 3.5 million BTU, gas fired
Heating plants, over 3.5 million BTU, oil fired
Heating plants, over 3.5 million BTU, coal fired

Heating plants, under 3.5 million BTU
Heating plants, under 3.5 million BTU, gas fired
Heating plants, under 3.5 million BTU, oil fired
Heating plants, under 3.5 million BTU, coal fired

Class 62

Functional category 09:
Heated space

Class 63

Functional category 09:
Degree days 65° base
Degree days 50° base

Class 64

Functional category 09:
Fuel cooking and hot water
Fuel laundry
Special purpose fuels

Class 65

Average cost fuel

Class 66

Costs other than fuel

Class 67

Fuel factor

Class 68

Functional category 10:
Surface improvements
Operational structures
Waterfront facilities
Waterways
RDT&E facilities

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Miscellaneous structures
Utilities
Water systems
Sewage systems
Electric systems
Heating systems
Other heating support
Refrigeration and air conditioning
Other utilities
Food service equipment
Mechanical ventilation
Evaporative cooling
Dehumidification equipment
Compressed air
Fire and other alarm systems
Other

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B-29

2. DATA ELEMENT FACT SHEETS

Data element fact sheets are presented for the following data elements.

Actual hours to complete work orders with standards
Actual hours working on work orders with standards
Actual performance
Appropriation
Building component
Change in financed dollars
Command abbreviation
Condition rating
Contract \$ cost
Contract \$ required
Craft
Data class
Data type
Dollars earned
Elements of expense
Equipment acquisition \$ cost
Equipment acquisition \$ required
Equipment rental cost
Equipment type
Facility class and construction category code
Facility component
Facility number
FHMA subappropriation
Financing type
Fiscal quarter
Functional category
Funded cost
Hours to have standards
Hours with standards on completed work orders
Installation code
Kind of installation
Labor \$ cost
Labor \$ required
Material and supplies \$ cost
Material and supplies \$ required
Narrative description
Narrative title
Number of units
Object class
OMA subappropriation
Per capita usage
Percent coverage
Percent performance
Performance standard
Performance unit of measure
Personnel type
Planned coverage percent
Planned performance percent
Priority class
RDT&E subappropriation
Reimbursing agency

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B-31

Review period
Status
Status of financing
Surface improvement component
Target performance
Total actual hours worked
Total \$ cost
Total \$ required
Type of work
Type supply
Type year
Unfunded cost
Unit cost
Unit of measure
User/program element/program
Utility system component
Work accomplishment

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B-32

DATA ELEMENT FACT SHEET		
1. Data Element Name Actual hours to complete work orders with standards		2. Data Use Identifier Classes 10, 11, 40
3. Field Composition	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the actual number of hours expended in the execution of work covered by standards for completed work orders. <div style="text-align: right;"><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>		
10. Data Items and Codes Expressed in whole hours only, leading blanks allowed.		
11. Remarks		

DATA ELEMENT FACT SHEET		
1. Data Element Name Actual hours working on work orders with standards		2. Data Use Identifier Classes 10, 11, 40
3. Field Composition	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition The actual number of hours expended in working on work orders covered by standards. <div style="text-align: right;"><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>		
10. Data Items and Codes Expressed in whole hours only. Leading blanks allowed.		
11. Remarks		

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DATA ELEMENT FACT SHEET		
1. Data Element Name Actual performance		2. Data Use Identifier Classes 9, 16, 49, 52, 53, 54, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65
3. Field Composition Numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition This is the actual volume of activity executed during a period of time. <div style="text-align: right;"><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>		
10. Data Items and Codes Decimal value, leading blanks allowed. Keyed to data element "performance unit of measure."		
11. Remarks		

DATA ELEMENT FACT SHEET		
1. Data Element Name Appropriation		2. Data Use Identifier Class 3
3. Field Composition 1 numeric	4. Mnemonic	5. Source (Reference) AR37-100
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Identifies the source of funds for an RPMA work unit. <div style="float: right;"> <input checked="checked" type="checkbox"/> Same Definition as Source Referenced <input type="checkbox"/> New Definition </div>		
10. Data Items and Codes OMA RDT&E PEMA FHMA MPA AIF overhead Other		
11. Remarks		

DATA ELEMENT FACT SHEET		
1. Data Element Name Building component		2. Data Use Identifier Same as data element name
3. Field Composition 1 numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies that portion of a building on which work is done . <div style="text-align: right;"><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>		
10. Data Items and Codes Painting Roof Floor Building shell Heating system Air conditioning Plumbing Electrical Other Preventive maintenance		
11. Remarks Reference Exhibit III-2n		

DATA ELEMENT FACT SHEET		
1. Data Element Name Change in financed dollars		2. Data Use Identifier Classes 8, 10, 11, 12, 39, 40, 41
3. Field Composition Numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the change in dollars for financed work because of reprogramming actions <div style="text-align: right;"> <input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition </div>		
10. Data Items and Codes Expressed to the nearest tenth of a hundred dollars. A decimal point is assumed between the lowest and next-to-lowest order digits.		
11. Remarks		

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DATA ELEMENT FACT SHEET		
1. Data Element Name Command abbreviation		2. Data Use Identifier Same as data element name
3. Field Composition 2 alpha-numeric	4. Mnemonic	5. Source (Reference) PRC R-1209, Vol. V, pg. D-40
6. Echelon and Office Initially Collecting		
8. Update Frequency		
9. Definition Standard abbreviations for the command codes. As used here, identifies the command supplying the resources used in accomplishing an RPMA unit of work. <div style="text-align: right;"><input checked="" type="checkbox"/> Same Definition as Source Referenced <input type="checkbox"/> New Definition</div>		
10. Data Items and Codes See PRC R-1209, Vol. V, pg. D-41		
11. Remarks		

DATA ELEMENT FACT SHEET		
1. Data Element Name Condition rating		2. Data Use Identifier Classes 3, 10, 14, 23, 28, 32, 34, 68
3. Field Composition 2 alpha-numeric	4. Mnemonic	5. Source (Reference) PRC R-1209, Vol. VI, parts 1&2
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition See Source (Reference) <div style="float: right;"> <input checked="" type="checkbox"/> Same Definition as Source Referenced <input type="checkbox"/> New Definition </div>		
10. Data Items and Codes C1 (see reference) C2 C3 C4		
11. Remarks		

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B-44

DATA ELEMENT FACT SHEET		
1. Data Element Name Data type		2. Data Use Identifier Same as data element name
3. Field Composition 1 numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the nature of the data being reported. <div><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>		
10. Data Items and Codes Projection Standard Actual Target Corrected target		
11. Remarks		

DATA ELEMENT FACT SHEET		
1. Data Element Name Dollars earned		2. Data Use Identifier Classes 6, 9, 13, 16, 22, 31, 36, 41, 49, 50, 52, 56
3. Field Composition Numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the dollars earned in sales of utilities or other RPMA services. <div style="text-align: right;"><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>		
10. Data Items and Codes Whole dollars with leading blanks allowed.		
11. Remarks		

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DATA ELEMENT FACT SHEET

1. Data Element Name Elements of expense		2. Data Use Identifier Same as data element name	
3. Field Composition 2 numeric	4. Mnemonic	5. Source (Reference) DoD 7220.00	
6. Echelon and Office Initially Collecting Post engineer			
8. Update Frequency			
9. Definition Classifies RPMA expenses by elements of expense listed below. <div style="float: right;"> <input checked="checked" type="checkbox"/> Same Definition as Source Referenced <input type="checkbox"/> New Definition </div>			
10. Data Items and Codes Military personnel Military trainees Military unassigned Civilian personnel Travel of personnel Transportation of things Utilities and rents Communications Purchased equipment maintenance (intra-DoD) Purchased equipment maintenance (commercial) Printing and reproduction Other purchased services Aircraft POL Ship POL Other supplies Equipment Other expenses Service credits			
11. Remarks			

DATA ELEMENT FACT SHEET		
1. Data Element Name Equipment acquisition \$ cost		2. Data Use Identifier Classes 5, 9, 10, 11, 12, 13, 14, 15, 16, 17, 41, 49, 50, 51, 52, 53, 56, 57, 58, 59, 60, 61, 68
3. Field Composition Numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the number of dollars actually spent in acquisition of equipment for the execution of RPMA work. <div style="float: right;"> <input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition </div>		
10. Data Items and Codes Expressed in whole dollars with leading blanks allowed.		
11. Remarks		

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DATA ELEMENT FACT SHEET		
1. Data Element Name Equipment acquisition \$ required		2. Data Use Identifier Classes 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 23, 24, 25, 26, 27, 28, 31, 32, 33, 34, 36
3. Field Composition Numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the projected (or reprogrammed) requirement for dollars for equipment acquisition for execution of RPMA work. <div style="text-align: right;"><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>		
10. Data Items and Codes Expressed to the nearest tenth of a thousand dollars. A decimal point is assumed between the lowest and next-to-lowest order digits. Leading blanks are allowed.		
11. Remarks		

DATA ELEMENT FACT SHEET		
1. Data Element Name Equipment rental cost		2. Data Use Identifier Class 4
3. Field Composition Numeric	4. Mnemonic	5. Source (Reference) AR 420-19 and AR 415-35
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the number of dollars expended for O&M of equipment used in execution of an RPMA work unit. Amount is the product of hours of use times rental rate prescribed in Source (Reference). <div style="display: flex; justify-content: flex-end; align-items: center;"> <input checked="checked" type="checkbox"/> Same Definition as Source Referenced <input type="checkbox"/> New Definition </div>		
10. Data Items and Codes Expressed in whole dollars. Leading blanks allowed.		
11. Remarks Hours of use recorded on DA Form 5-7.		

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DATA ELEMENT FACT SHEET		
1. Data Element Name Equipment type		2. Data Use Identifier Same as data element name
3. Field Composition Alpha-numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies type of equipment required in execution of an RPMA work unit. <div style="text-align: right;"><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>		
10. Data Items and Codes Name of equipment.		
11. Remarks		

DATA ELEMENT FACT SHEET		
1. Data Element Name Facility class and construction category code		2. Data Use Identifier Same as data element name
3. Field Composition 5 alpha-numeric	4. Mnemonic FCCCC or FC ⁴	5. Source (Reference) AR415-28 AR210-20
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the type of facility under consideration. <div style="text-align: right;"> <input checked="checked" type="checkbox"/> Same Definition as Source Referenced <input type="checkbox"/> New Definition </div>		
10. Data Items and Codes See references		
11. Remarks		

DATA ELEMENT FACT SHEET

1. Data Element Name Facility component			2. Data Use Identifier Same as data element name		
3. Field Composition 1 alpha		4. Mnemonic		5. Source (Reference)	
6. Echelon and Office Initially Collecting Post engineer					
8. Update Frequency					
9. Definition Specifies facility component on which RPMA resources are expended. <div style="text-align: right;"><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>					
10. Data Items and Codes Interior (painting) Exterior (painting) Roofing Flooring Building shell Heating Ventilation and air conditioning Plumbing Electric See also Building Component, p. B-36; Surface Improvement Component, p. B-87; Utilities System Component, p. B-99.					
11. Remarks Reference Exhibit III-2n.					

DATA ELEMENT FACT SHEET		
1. Data Element Name Facility number		2. Data Use Identifier Same as data element name
3. Field Composition 5 alpha-numeric	4. Mnemonic Facility number	5. Source (Reference) PRC R-1209, Vol.V, pg. D-71
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition The number assigned to a facility. <div style="float: right;"> <input checked="" type="checkbox"/> Same Definition as Source Referenced <input type="checkbox"/> New Definition </div>		
10. Data Items and Codes See reference		
11. Remarks		

DATA ELEMENT FACT SHEET

1. Data Element Name FHMA subappropriation			2. Data Use Identifier Class 3		
3. Field Composition 4 alpha-numeric		4. Mnemonic		5. Source (Reference) AR 37-100-xx	
6. Echelon and Office Initially Collecting Post engineer					
8. Update Frequency					
9. Definition Specifies the budget program funding on RPMA activity. <div style="text-align: right;"><input checked="checked" type="checkbox"/> Same Definition as Source Referenced <input type="checkbox"/> New Definition</div>					
10. Data Items and Codes See AR 37-100-xx, FHMA activities structure.					
11. Remarks					

DATA ELEMENT FACT SHEET		
1. Data Element Name Financing type		2. Data Use Identifier Class 3
3. Field Composition 1 numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies whether a unit of RPMA activity is directly or reimbursably financed. <div style="text-align: right;"><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>		
10. Data Items and Codes Direct Reimbursable		
11. Remarks		

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DATA ELEMENT FACT SHEET		
1. Data Element Name Fiscal quarter		2. Data Use Identifier Classes 5, 13, 14, 15, 22, 23, 24, 25
3. Field Composition 1 numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the quarter of the fiscal year in which a unit of RPMA work is to be done. <div style="text-align: right;"><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>		
10. Data Items and Codes July - September October - December January - March April - June		
11. Remarks		

DATA ELEMENT FACT SHEET		
1. Data Element Name Functional category		2. Data Use Identifier Same as data element name
3. Field Composition 2 numeric	4. Mnemonic	5. Source (Reference) AR37-100-xx
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition AMS classification of RPMA activities. <div style="float: right;"> <input checked="checked" type="checkbox"/> Same Definition as Source Referenced <input type="checkbox"/> New Definition </div>		
10. Data Items and Codes Operation of utilities Maintenance of real property Minor construction Other engineering services		
11. Remarks		

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DATA ELEMENT FACT SHEET		
1. Data Element Name Funded cost		2. Data Use Identifier Classes 29, 30
3. Field Composition Numeric	4. Mnemonic	5. Source (Reference) AR 415-35, AR 37-108
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition See AR 415-35 - funded project cost See AR 37-108 - funded cost <input checked="checked" type="checkbox"/> Same Definition as Source Referenced <input type="checkbox"/> New Definition		
10. Data Items and Codes Expressed to the nearest tenth of a thousand dollars. A decimal point is assumed between lowest and next-to-lowest order digits. Allowable values are zero to the largest decimal value expressable in a field of given length. Leading blanks are allowed.		
11. Remarks		

DATA ELEMENT FACT SHEET		
1. Data Element Name Hours to have standards		2. Data Use Identifier Classes 10, 11, 37
3. Field Composition Numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the number of hours expected in the execution of work orders covered by standards. Is the sum of the individual time allowances. <div style="text-align: right;"><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>		
10. Data Items and Codes Expressed in whole hours only.		
11. Remarks		

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DATA ELEMENT FACT SHEET		
1. Data Element Name Hours with standards on completed work orders		2. Data Use Identifier Classes 10, 11, 40
3. Field Composition	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the number of hours expected in the execution of completed work orders which were covered by standards. Is the sum of the individual time allowances. <div style="text-align: right;"><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>		
10. Data Items and Codes Expressed in whole hours only, leading blanks allowed.		
11. Remarks		

DATA ELEMENT FACT SHEET		
1. Data Element Name Installation code		2. Data Use Identifier Same as data element name
3. Field Composition Numeric	4. Mnemonic	5. Source (Reference) PRC R-1209, Vol. V, pg. D-38
6. Echelon and Office Initially Collecting		
8. Update Frequency		
9. Definition The number (code) assigned to each installation (worldwide). The data element is called "installation number" in the reference cited. <div style="float: right;"> <input checked="checked" type="checkbox"/> Same Definition as Source Referenced <input type="checkbox"/> New Definition </div>		
10. Data Items and Codes See reference		
11. Remarks		

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DATA ELEMENT FACT SHEET		
1. Data Element Name Kind of installation		2. Data Use Identifier Same as data element name
3. Field Composition 1 numeric	4. Mnemonic	5. Source (Reference) PRC R-1209, Vol. V, pg. D-91
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the nature of the major operation performed at the installation. <div style="text-align: right;"><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>		
10. Data Items and Codes Depot Housing Industrial plant		
11. Remarks		

DATA ELEMENT FACT SHEET		
1. Data Element Name Labor \$ cost		2. Data Use Identifier Classes 5, 9, 10, 11, 12, 13, 14, 15, 16, 17, 41, 50, 51, 52, 53, 56, 57, 58, 59, 60, 61, 68
3. Field Composition Numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the number of dollars actually spent in the execution of a unit of RPMA work. <div style="float: right;"> <input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition </div>		
10. Data Items and Codes Expressed to the nearest tenth of a thousand dollars. A decimal point is assumed between the lowest and next-to-lowest order digits. Leading blanks are allowed.		
11. Remarks		

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DATA ELEMENT FACT SHEET		
1. Data Element Name Labor \$ required		2. Data Use Identifier Classes 1,2, 3,4,6,7,8,9,10,11,12,13,14,15,22 23,24,25,26,27,28,31,32,33,34,36
3. Field Composition Numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the projected (or reprogrammed) dollar requirement for labor to execute a unit of RPMA work. <div style="text-align: right;"><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>		
10. Data Items and Codes Expressed to the nearest tenth of a thousand dollars. A decimal point is assumed between the lowest and next-to-lowest order integers. Leading blanks are allowed.		
11. Remarks		

DATA ELEMENT FACT SHEET		
1. Data Element Name Material and supplies \$ cost		2. Data Use Identifier Classes 5, 9, 10, 11, 12, 13, 14, 15, 16, 17, 41, 50, 51, 52, 53, 56, 57, 58, 59, 60, 61, 68
3. Field Composition Numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the number of dollars actually spent for materials and supplies in the execution of a unit of RPMA work. <div style="float: right;"> <input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition </div>		
10. Data Items and Codes Expressed to the nearest tenth of a thousand dollars. A decimal point is assumed between the lowest and next-to-lowest order digits. Leading blanks are assumed.		
11. Remarks		

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DATA ELEMENT FACT SHEET		
1. Data Element Name Material and supplies \$ required		2. Data Use Identifier Classes 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 22, 23, 24, 25, 27, 28, 31, 32, 33, 34, 36
3. Field Composition Numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the projected (or reprogrammed) requirement for dollars for materials needed to execute a unit of RFMA work. <div style="text-align: right;"><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>		
10. Data Items and Codes Expressed to the nearest tenth of a thousand dollars. A decimal point is assumed between the lowest and next-to-lowest order digit. Leading blanks are allowed.		
11. Remarks		

DATA ELEMENT FACT SHEET		
1. Data Element Name Narrative description		2. Data Use Identifier Class 30
3. Field Composition 40 alpha-numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Narrative description of RPMA work or activity. <div style="float: right;"> <input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition </div>		
10. Data Items and Codes Any 40 characters may be entered.		
11. Remarks		

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DATA ELEMENT FACT SHEET		
1. Data Element Name Narrative title		2. Data Use Identifier Same as data element name
3. Field Composition 15 alpha-numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Narrative project title <div><input type="checkbox"/> Same Definition as Source Referenced</div> <div><input checked="" type="checkbox"/> New Definition</div>		
10. Data Items and Codes Any 15 characters may be entered.		
11. Remarks		

DATA ELEMENT FACT SHEET		
1. Data Element Name Number of units		2. Data Use Identifier Classes 6, 7, 13, 14, 22, 24, 26, 30, 32, 40, 54, 57, 62, 63, 64, 65, 66, 67
3. Field Composition Numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the number of units of measure involved in execution of an RPMA work unit. <div style="float: right;"> <input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition </div>		
10. Data Items and Codes Decimal value, leading blanks allowed.		
11. Remarks		

DATA ELEMENT FACT SHEET		
1. Data Element Name Object class	2. Data Use Identifier Same as data element name	
3. Field Composition 3 numeric	4. Mnemonic	5. Source (Reference) AR37-100
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Classifies RPMA expenses by object class. <div style="text-align: right; margin-top: 20px;"> <input checked="checked" type="checkbox"/> Same Definition as Source Referenced <input type="checkbox"/> New Definition </div>		
10. Data Items and Codes <u>Personnel services</u> Personnel compensation (direct hire, U.S.) Personnel benefits (direct hire, U.S.) Benefits for former personnel Military personnel, Army Military trainees and students Military personnel, unassigned Military personnel, loaned Military personnel, borrowed Military personnel, Air Force Military personnel, Navy Military personnel, Marine Corps Personnel compensation (direct hire, foreign national) Personnel benefits (direct hire, foreign national) <u>Contractual services and supplies</u> Travel and transportation - U.S. personnel stationed abroad and traveling abroad (per diem) <div style="text-align: right; margin-top: 10px;">(continued on next page)</div>		
11. Remarks		

DATA ELEMENT FACT SHEET (Continued)

1. Data Element Name Object class	2. Data Use Identifier Same as data element name
<p>10. Data Items and Codes (Continued)</p> <p>Travel and transportation - U. S. personnel stationed in U.S., traveling abroad (per diem)</p> <p>Travel and transportation - payment to foreign carrier for travel of U. S. military, U.S. civilian, and foreign national personnel</p> <p>Travel and transportation - travel of direct hire foreign national personnel (per diem)</p> <p>Travel and transportation - travel of indirect-hire foreign national personnel (per diem)</p> <p>Travel and transportation - all other</p> <p>Transportation of things</p> <p>Utilities and rents</p> <p>Communications</p> <p>Printing and reproduction</p> <p>Purchased services</p> <p>Purchased equipment maintenance (GOCO, COCO)</p> <p>Purchased equipment maintenance (other military departments)</p> <p>Purchased equipment depot maintenance (organic, non-AIF)</p> <p>Purchased equipment depot maintenance (organic, AIF)</p> <p>Management studies and projects</p> <p>ADP services, studies, and projects</p> <p>Operations research (OR) studies or projects</p> <p>Supplies (except POL and medical)</p> <p>Aircraft POL</p> <p>Ship POL</p> <p>Other POL</p> <p>Medical supplies</p> <p>Purchased motor pool services (OMA)</p> <p>Purchased motor pool services (MPA)</p> <p>R&U equipment rental</p> <p>Service credits (OMA)</p> <p>Service credits (MPA)</p> <p>Contract personnel, indirect hire, foreign</p> <p><u>Acquisition of capital assets</u></p> <p>Capital equipment (investment items)</p> <p>Capital equipment (expense items)</p> <p>Medical</p> <p>Lands and structures--acquired by contract</p> <p>Investments and loans</p> <p><u>Grants and fixed charges</u></p> <p>Grants, subsidies, and contributions</p> <p>Insurance claims and indemnities</p> <p><u>All other</u></p> <p>General</p>	

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DATA ELEMENT FACT SHEET		
1. Data Element Name OMA subappropriation		2. Data Use Identifier Class 3
3. Field Composition 4 alpha-numeric	4. Mnemonic	5. Source (Reference) AR37-100-xx
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the budget program. <div style="text-align: right;"><input checked="" type="checkbox"/> Same Definition as Source Referenced <input type="checkbox"/> New Definition</div>		
10. Data Items and Codes See AR37-100-xx, OMA activities structure		
11. Remarks		

DATA ELEMENT FACT SHEET		
1. Data Element Name Per capita usage		2. Data Use Identifier Classes 49, 56, 57, 58
3. Field Composition Numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the quantity of per capita usage. <div style="float: right;"> <input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition </div>		
10. Data Items and Codes Decimal value, leading blanks allowed.		
11. Remarks		

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DATA ELEMENT FACT SHEET		
1. Data Element Name Percent coverage		2. Data Use Identifier Classes 10, 11, 40
3. Field Composition 2 numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition The percent coverage is the ratio of actual hours working on work orders with standards and total actual hours worked. <div style="text-align: right;"><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>		
10. Data Items and Codes 00-99		
11. Remarks		

DATA ELEMENT FACT SHEET		
1. Data Element Name Percent performance		2. Data Use Identifier Classes 10, 11, 40
3. Field Composition 3 numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition The ratio of "hours with standards on completed work orders" to "actual hours to complete work orders with standards." <div style="text-align: right;"><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>		
10. Data Items and Codes 000-999		
11. Remarks		

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DATA ELEMENT FACT SHEET		
1. Data Element Name Performance standard		2. Data Use Identifier Classes 9, 16, 49, 52, 53, 54, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65
3. Field Composition Numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition The performance standard is the value of the performance unit of measure the post engineer attempts to achieve. See data element "performance unit of measure." <div style="float: right;"> <input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition </div>		
10. Data Items and Codes Decimal value, zero to the largest expressible for this field length. Leading blanks are allowed.		
11. Remarks		

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DATA ELEMENT FACT SHEET		
1. Data Element Name Performance unit of measure		2. Data Use Identifier Classes 9, 16, 49, 52, 53, 54, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65
3. Field Composition 2 numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Performance units of measure differ widely in nature. The class will be defined by its items. <div style="float: right;"> <input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition </div>		
10. Data Items and Codes Dollars per million gallons Percent membrane fermentation Percent fermentation Dollars per million kwh Percent failures Ratio of kva to kw demand Number of failures Man-days Percent replacement Dollars per million Btu Percent plant efficiency Pounds per million cubic feet per Degree day		
11. Remarks		

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DATA ELEMENT FACT SHEET		
1. Data Element Name Personnel type		2. Data Use Identifier Same as data element name
3. Field Composition 1 alpha	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the type of personnel involved in work unit execution. <div style="text-align: right;"><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>		
10. Data Items and Codes Supervisory Laborers Firemen Occupants Users Civilian government employees Entomologists Daily average residents Daily average nonresidents		
11. Remarks		

DATA ELEMENT FACT SHEET		
1. Data Element Name Planned coverage percent		2. Data Use Identifier Classes 10, 11, 37
3. Field Composition 2 numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the percentage of planned work covered by standards. <div style="float: right;"> <input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition </div>		
10. Data Items and Codes 00-99		
11. Remarks		

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DATA ELEMENT FACT SHEET		
1. Data Element Name Planned performance percent		2. Data Use Identifier Classes 10, 11, 37
3. Field Composition 2 numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specific percentage of planned work actually performed. <div style="text-align: right;"><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>		
10. Data Items and Codes 00-99		
11. Remarks		

DATA ELEMENT FACT SHEET		
1. Data Element Name Priority class		2. Data Use Identifier Classes 1, 3, 7, 22, 23, 24, 25, 27, 28, 30, 31, 32, 33, 34, 41, 52, 60
3. Field Composition 1 numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Requirements are grouped into three classes by degree of urgency. <div style="float: right;"> <input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition </div>		
10. Data Items and Codes Essential Important Remainder		
11. Remarks		

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DATA ELEMENT FACT SHEET		
1. Data Element Name RDT&E subappropriation		2. Data Use Identifier Class 3
3. Field Composition 4 alphanumeric	4. Mnemonic	5. Source (Reference) AR 37-100-xx
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the budget program funding an RPMA activity. <div style="text-align: right;"><input checked="" type="checkbox"/> Same Definition as Source Referenced <input type="checkbox"/> New Definition</div>		
10. Data Items and Codes See AR 37-100-xx, RDT&E Activities Structure.		
11. Remarks		

DATA ELEMENT FACT SHEET		
1. Data Element Name Reimbursing agency		2. Data Use Identifier Class 3
3. Field Composition 1 numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the agency reimbursing the Army for a unit of RPMA work performed. <div style="float: right;"> <input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition </div>		
10. Data Items and Codes Air Force Navy Other Federal Non-Federal		
11. Remarks		

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DATA ELEMENT FACT SHEET		
1. Data Element Name Review period		2. Data Use Identifier Class 2
3. Field Composition 1 numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the review period to which RPMA work accomplishment (or planned accomplishment) applies. <input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition		
10. Data Items and Codes July-October November-December January-March April-June		
11. Remarks		

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DATA ELEMENT FACT SHEET		
1. Data Element Name Status		2. Data Use Identifier Same as data element name
3. Field Composition 1 numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Identifies the status of the executing installation. <div style="float: right;"> <input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition </div>		
10. Data Items and Codes Active Inactive Standby Excess		
11. Remarks		

DATA ELEMENT FACT SHEET

1. Data Element Name Status of financing			2. Data Use Identifier Same as data element name		
3. Field Composition 1 numeric		4. Mnemonic		5. Source (Reference)	
6. Echelon and Office Initially Collecting Post engineer					
8. Update Frequency					
9. Definition Specifies whether or not a unit of RPMA work is financed. <div style="text-align: right;"><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>					
10. Data Items and Codes Financed Unfinanced					
11. Remarks					

DATA ELEMENT FACT SHEET		
1. Data Element Name Surface improvement component		2. Data Use Identifier Same as data element name
3. Field Composition 1 numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the type of surface improvement work on which RPMA resources are expended. <div style="text-align: right;"><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>		
10. Data Items and Codes Surface treatment, overlays, appurtenant facilities, preventive maintenance. Other Total		
11. Remarks Reference Exhibit III-2n.		

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DATA ELEMENT FACT SHEET

1. Data Element Name Target performance			2. Data Use Identifier Classes 9, 16, 49, 52, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65		
3. Field Composition Numeric		4. Mnemonic		5. Source (Reference)	
6. Echelon and Office Initially Collecting Post engineer					
8. Update Frequency					
9. Definition <p>This is the volume of activity anticipated for the following execution year.</p> <div style="text-align: right;"><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>					
10. Data Items and Codes Decimal value, leading blanks allowed.					
11. Remarks					

DATA ELEMENT FACT SHEET		
1. Data Element Name Total actual hours worked		2. Data Use Identifier Classes 10, 11, 40
3. Field Composition Numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition The total actual number of hours expended in execution of work orders (completed or not). <div style="text-align: right;"><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>		
10. Data Items and Codes Expressed in whole hours only. Leading blanks allowed.		
11. Remarks		

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DATA ELEMENT FACT SHEET		
1. Data Element Name Total \$ cost		2. Data Use Identifier Classes 5, 9, 10, 11, 12, 13, 14, 15, 16, 17, 41, 68
3. Field Composition Numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting		
8. Update Frequency		
9. Definition Specifies the sum of equipment use, labor, material and supplies, and contract dollar costs as defined in this appendix. <input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition		
10. Data Items and Codes Expressed in whole dollars with leading blanks.		
11. Remarks		

DATA ELEMENT FACT SHEET		
1. Data Element Name Total \$ required		2. Data Use Identifier Classes 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 22, 23, 24, 25, 26, 27, 28, 31, 32, 33, 34, 36
3. Field Composition Numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the sum of materials and supplies, equipment use, labor, and contract dollar requirements as they are defined for a unit of RPMA work. <div style="text-align: right;"> <input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition </div>		
10. Data Items and Codes Expressed to the nearest tenth of a thousand dollars. A decimal point is assumed between lowest and next-to-lowest order digits. Leading blanks are allowed.		
11. Remarks		

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DATA ELEMENT FACT SHEET		
1. Data Element Name Type of work		2. Data Use Identifier Class 30
3. Field Composition 1 numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the type of work involved in execution of an RPMA work unit. <input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition		
10. Data Items and Codes Construction Alteration Conversion Addition		
11. Remarks		

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DATA ELEMENT FACT SHEET		
1. Data Element Name Type supply		2. Data Use Identifier Same as data element name
3. Field Composition	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Identifies type of supplies required in execution of work or activity. <div style="text-align: right;"><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>		
10. Data Items and Codes Maximum use should be made of any existing codification of supply types.		
11. Remarks		

DATA ELEMENT FACT SHEET

1. Data Element Name Type year			2. Data Use Identifier Same as data element name		
3. Field Composition 1 numeric		4. Mnemonic		5. Source (Reference)	
6. Echelon and Office Initially Collecting Post engineer					
8. Update Frequency					
9. Definition Specifies whether calendar or fiscal year is being considered. <div style="text-align: right;"><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>					
10. Data Items and Codes Fiscal Calendar					
11. Remarks					

DATA ELEMENT FACT SHEET		
1. Data Element Name Unfunded cost		2. Data Use Identifier Classes 29, 30
3. Field Composition Numeric	4. Mnemonic	5. Source (Reference) AR415-35, AR 37-108
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition See AR 415-35 - unfunded project cost See AR 37-108 - unfunded cost <div style="text-align: right;"><input checked="" type="checkbox"/> Same Definition as Source Referenced <input type="checkbox"/> New Definition</div>		
10. Data Items and Codes Expressed to the nearest tenth of a thousand dollars. A decimal point is assumed between the lowest and next-to-lowest order digits. Allowable values are zero to the largest decimal value expressible in the field. Leading blanks are allowed.		
11. Remarks		

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DATA ELEMENT FACT SHEET		
1. Data Element Name Unit cost		2. Data Use Identifier Same as data element name
3. Field Composition Numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Cost in dollars of one unit of substance, activity, or item under consideration. <div style="text-align: right;"><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>		
10. Data Items and Codes Expressed in whole dollars only with leading blanks. Field must be long enough to accommodate the largest unit cost encountered in RPMA activities. Allowable entries are zero to the largest decimal value the field will contain.		
11. Remarks		

DATA ELEMENT FACT SHEET

1. Data Element Name Unit of measure		2. Data Use Identifier Classes 6, 7, 13, 14, 22, 24, 26, 30, 32, 40, 49, 50, 51, 52, 53, 54, 55, 57, 59, 60, 61, 62, 63, 64																																																										
3. Field Composition 2 numeric	4. Mnemonic	5. Source (Reference) 65, 66																																																										
6. Echelon and Office Initially Collecting Post engineer																																																												
8. Update Frequency																																																												
9. Definition Specifies unit of measure of related quantity or quantities. <div style="text-align: right;"> <input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition </div>																																																												
10. Data Items and Codes <table border="0" style="width: 100%;"> <tr> <td>Million gallons</td> <td>Failures (motor)</td> <td>Units delivered</td> </tr> <tr> <td>Gallons per day</td> <td>Percent failure</td> <td>People served</td> </tr> <tr> <td>Pounds</td> <td>Percent replacement</td> <td>People capacity</td> </tr> <tr> <td>Degree days (65° base)</td> <td>Percent plant efficiency</td> <td></td> </tr> <tr> <td>Degree days (50° base)</td> <td>Percent</td> <td></td> </tr> <tr> <td>MHDU 56° and above</td> <td>Dollars</td> <td></td> </tr> <tr> <td>MHDU 55° and below</td> <td>Million dollars</td> <td></td> </tr> <tr> <td>Million kwh</td> <td>Thousand dollars</td> <td></td> </tr> <tr> <td>Kilovolt-amps</td> <td>Dollars per million Btu</td> <td></td> </tr> <tr> <td>Ratio of kva to kw demand</td> <td>Dollars per million gallons</td> <td></td> </tr> <tr> <td>Ton capacity</td> <td>Dollars per ton</td> <td></td> </tr> <tr> <td>Horsepower capacity</td> <td>Feet</td> <td></td> </tr> <tr> <td>Million Btu</td> <td>Square feet</td> <td></td> </tr> <tr> <td>Tons</td> <td>Square yards</td> <td></td> </tr> <tr> <td>Cubic feet</td> <td>Square miles</td> <td></td> </tr> <tr> <td>Cubic feet per minute</td> <td>Percent concentration</td> <td></td> </tr> <tr> <td>Sample</td> <td>Items serviced</td> <td></td> </tr> <tr> <td>Portion</td> <td>Inches (cumulative)</td> <td></td> </tr> <tr> <td>Failures (power)</td> <td></td> <td></td> </tr> </table>				Million gallons	Failures (motor)	Units delivered	Gallons per day	Percent failure	People served	Pounds	Percent replacement	People capacity	Degree days (65° base)	Percent plant efficiency		Degree days (50° base)	Percent		MHDU 56° and above	Dollars		MHDU 55° and below	Million dollars		Million kwh	Thousand dollars		Kilovolt-amps	Dollars per million Btu		Ratio of kva to kw demand	Dollars per million gallons		Ton capacity	Dollars per ton		Horsepower capacity	Feet		Million Btu	Square feet		Tons	Square yards		Cubic feet	Square miles		Cubic feet per minute	Percent concentration		Sample	Items serviced		Portion	Inches (cumulative)		Failures (power)		
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Failures (power)																																																												
11. Remarks																																																												

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DATA ELEMENT FACT SHEET		
1. Data Element Name User/program element/program		2. Data Use Identifier Same as data element name
3. Field Composition 1 numeric	4. Mnemonic	5. Source (Reference) DOD 7045.7 Handbook
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition <p>This data element identifies the FYDP program receiving the benefit from a unit of RPMA work.</p> <p><input checked="checked" type="checkbox"/> Same Definition as Source Referenced</p> <p><input type="checkbox"/> New Definition</p>		
10. Data Items and Codes Strategic forces General purpose forces Intelligence and communications Airlift/sealift Guard and reserve forces Research and development Central supply and maintenance Training, medical, and other general personnel activities Administration and associated activities Support of other nations		
11. Remarks		

DATA ELEMENT FACT SHEET		
1. Data Element Name Utility System Component		2. Data Use Identifier Same as data element name
3. Field Composition 1 numeric	4. Mnemonic	5. Source (Reference)
6. Echelon and Office Initially Collecting Post engineer		
8. Update Frequency		
9. Definition Specifies the category of facility work involved in execution of an RPMA unit of work. <div style="float: right;"> <input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition </div>		
10. Data Items and Codes Building Installed equipment Mains and laterals Other Total		
11. Remarks Reference Exhibit III-2n.		

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DATA ELEMENT FACT SHEET

1. Data Element Name Work accomplishment			2. Data Use Identifier Same as data element name		
3. Field Composition 1 numeric		4. Mnemonic		5. Source (Reference)	
6. Echelon and Office Initially Collecting Post engineer					
8. Update Frequency					
9. Definition Specifies whether a unit of RPMA work is accomplished (or planned to be accomplished) in-house or by other means. <div style="text-align: right;"><input type="checkbox"/> Same Definition as Source Referenced <input checked="" type="checkbox"/> New Definition</div>					
10. Data Items and Codes In-house Contract					
11. Remarks					

APPENDIX C
OTHER RPMA DATA

Listed below are other RPMA data collected and used by the post engineer organization in the horizontal work management system, but not included in the proposed vertical RPMA system. These data were identified from existing forms and reports as well as from interviews with facilities engineers at OCE. Since an in-depth analysis of the horizontal work management system was not made, this list is not intended to be complete.

1. Service Equipment Types and Type of Maintenance

Refuse Handling Equipment

Type

Detailed Data

Snow Removal and Ice Alleviation Equipment Type

Fire Prevention Equipment

Type

Maintenance Type

Custodial Equipment Type

Equipment Maintenance Costs

2. Refuse Handling

Containers

Type

Number

Size

Quantity Delivered

To Incinerator per Calendar Day

To Sanitary Fill per Calendar Day

To Other Disposal per Calendar Day

To Salvage Yard per Calendar Day

Area Serviced

Frequency of Refuse Pickup

Average Length of Haul, Miles

Average Number of Daily Trips

3. Snow Removal and Ice Alleviation Materials Types
4. Entomological Operations
 - Type of Operation
 - Operational Area
 - Pest Type
 - Descriptions of Pesticides Used
 - Type
 - Form
5. Fire Characteristics
 - Reporting Source Data
 - Station Number
 - Time
 - Fire Location
 - Notification Method
 - Structure Involved
 - Type
 - Size
 - Number of Casualties
 - Cause of Fire
 - Utilization
 - Number of Pieces of Equipment Responding
 - Number of Personnel Responding
 - Number of Hose Streams Used
 - Number of Fire Extinguishers Used
 - Fire Costs
 - Cost of Property Damage
 - Man-Hours Expended
6. Water Operating Log
 - Purchased Water, GPD
 - Well Water Produced, GPD
 - Surface Water Produced, GPD
 - Type Treatment
 - Chemical Analysis
 - Bacteriological Tests

7. Sewage Operating Log
 - Primary Treatment, GPD
 - Secondary Treatment, GPD
 - Received From Others, GPM
 - Received From Others, Population
8. Custodial Service Data
 - Types of Personnel
 - Building Data
 - Type of Operations
 - Required Frequency
9. Service Orders, Work Order, Job Order Requests
 - Work Order Number
 - Job Order Number
 - Type of Request
 - Individual Job Order
 - Standing Operation Order
 - Service Order
 - Shop Assigned
 - Tenant Organization
 - Activity Codes
 - Labor Hours
 - Cost of Shop Stock Used
 - Total Costs by Shop
 - SOO Effective Date
 - Required Completion Date
 - Actual Completion Date
10. Bill of Materials
 - Work Request Number
 - Stock or Part Number
11. Job Planning Times
 - Craft Time
 - Estimated Time
 - Allowed Time

- 12. Special Projects
 - Current Working Estimated Costs
 - Approved Funded Cost
 - Approved Design Cost
 - Estimated Replacement Cost
 - Real Property Inventory Value
- 13. Real Property
 - Air Conditioning Data
 - Heating Data
 - Hot Water Facilities Data
 - Fire Protection Data
 - Materials Data
 - Utilities Data
 - Description of Change
 - Cost of Change
- 14. Personnel Strengths
 - Long-Range
 - Mobilization
- 15. Land Management
 - Grounds Classification
 - Improved Acres
 - Semi-Improved Acres
 - Unimproved Acres
 - Planning Dates
 - Date of Original Plan
 - Revision Date
 - Grazing Outleases
 - Number
 - Acres
 - Cash Rental
 - Crop Outleases
 - Number
 - Acres
 - Cash Rental

Herbicide Treatment

Name

Application Rate

Acres Treated

16. Forest Management

Total Acres of Managed Forest Land

Long-Range Planning Dates

Date of Original

Revision Date

Timber Harvests Data

Reforestation Data

Fire Protection Data

Timber Access Road Data

Administrative Management Costs

Total Program Expenditures

Estimated Value of Lumber Products Harvested and Used
on Installations

Forestry Operations Contributing to Natural Beauty Data

17. Fish and Wildlife

Land Acreage in Program

Water Acreage in Program

Miles of Streams in Program

Miles of Shoreline in Program

Number of Visitors Granted Access

Total

For Hunting

For Fishing

For Other Outdoor Recreation

Number of Youth Groups Data

Existing reports in which some of the data are contained:

DA 5-2, Fire Report

DA 5-58, Repairs and Utilities Operating Log (Water - General)

DA 5-60, Repairs and Utilities Operating Log (Sewage - General)

DA 5-126, Refuse and Salvage Collection

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DA 726, Installation Long-Range and Command Intermediate-Range Construction Programs

DA 2699, Service Order

DA 2700, Work Order

DA 2701, Job Order Request

DA 2702, Bill of Materials

DA 2764, Job Planning Worksheet

DA 2785-1, Installation Natural Resources Report, Land Management

DA 2785-2, Installation Natural Resources Report, Forest Management

DA 2785-3, Installation Natural Resources Report, Fish and Wildlife Management

DA 2867, Repairs and Utilities Special Project Report

DA 2877, Real Property Record

DD 1113, Analysis of Custodial Personnel Requirements

DD 1532, Pest Control Summary Report

APPENDIX D

ANALYSIS OF WORK PERFORMANCE STANDARDS FOR POST ENGINEERING

Introduction to Appendixes D and E

H. B. Maynard and Company was requested to review and analyze Department of the Army Pamphlet 420-5, Repair and Utilities, Work Performance Standards for Post Engineering. The study was structured to compare the work standards used by post engineers in their work management system with an engineered standard data system which has been implemented in over 200 companies throughout the world. The system used for comparison is Universal Maintenance Standards (UMS).

This review concerns itself with:

Appendix D

- Application of standards
- Relative accuracy of standards of the two systems
- Treatment of allowances
- Other items analyzed

Appendix E

- Work performance and coverage

A. Summary

As a result of the review of DAP 420-5, the following has been determined:

- Both systems were established to obtain optimum return for labor resources available.
- Both systems recognize that effective management of a maintenance activity is achieved through sound application of three well-known elements of scientific management:

ORGANIZATION
+
MEASUREMENT
+
CONTROL

- Both systems use data developed from fundamental motion time measurement (MTM) data. However, the UMS system has three additional levels of data sophistication.
- The methodology of applying standards differs greatly in the two systems.
- There are small differences in many standard times between the two systems where work content can be determined to be the same.
- The greatest variance in standard times for comparable jobs is in the allowances established.
- Procedures for use of standards in DAP 420-5 provide only for analysis after the fact on over 25 percent of the man-hours used in maintenance.
- In DAP 420-5, utilization of standards for control is not formalized sufficiently to provide all of the management tools needed in an effective work management system.

B. Approach

The approach used for review of DAP 450-5 and comparison with UMS was as follows:

- Investigate procedural application
- Review relative accuracy of basic standards
- Review allowances conceptually and quantitatively
- Review benefits from use of standards

C. Application of Standards

The fundamental concepts for application of standards in industry is to preapply at least 85 percent of the man-hours expended. It is a well established fact that approximately 80 percent of the man-hours are used on 20 percent of the jobs. The control of 80 percent of the jobs, each of which averages only a few hours or segments of an hour, is the most difficult task and considered by many to be economically impracticable. UMS is designed to economically apply standards to every job prior to scheduling with the exception of emergencies. These generally are postapplied. Preventive maintenance and production-associated

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1 maintenance times are determined by study. Application of standards to this area of maintenance results in the assignment of labor in so-called standing work orders. All routine maintenance job standards are preapplied if job content of the work request is known and if the ratio of applicators (analysts) to workers is properly established. One analyst is generally capable of applying a standard in 2 to 3 minutes using the UMS job content analysis and the UMS slotting technique. One analyst per 30 to 50 mechanics is the generally accepted ratio and is dependent on the amount of repetitive work involved. The analyst, operating in the maintenance office as close to the foreman as possible, will:

- Receive all work requests
- Clarify work requirements
- Define craft responsibility (on multicraft jobs)
- Analyze work content
- Determine USM time standard
- Determine special tools and parts required

The work management system as described in DAP 420-6 recognizes three categories of work:

- Standing operations
- Service order jobs
- Individual jobs

Two tables of performance standards are used in DAP 420-5, each distinguished by the kind of job order. Maintenance service orders use Table V, which has a column for craft time of commonly occurring tasks. The second column summarizes the allowances including travel time of .167 hours, job preparation time of .067 hours, and personal time of 10 percent of the sum of craft, travel, and job preparation times. The total job standard is the sum of the times in the two columns.

Individual job orders use Tables VI through XXVIII reflecting performance standards according to craft or trade. Each craft has a craft allowance as shown in Table I; job preparation is shown in Table II by craft or type of operation. Material handling outside the work area is shown in Table III. Travel time development instructions are provided

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in Appendix I. Individual job order standard times are developed through use of a nomograph on the back of each DA Form 2764, Job Planning Worksheet.

To apply standards in DAP 420-5 requires that the job requested in the MSO or IJO must have nearly the same description as shown in the tables of standards. Because there is no backup information available on source formulas nor a description of the method used, it is difficult to determine whether the standards shown in the tables are based on the same methods, tools, and equipment used at the individual post or installation. For example, in Table V the task is "replace faulty wall switch" and the craft time is .30 hours. The analyst may well ask how many electrical conductors (wires) are involved, and how many mounting screws are involved. A more descriptive task definition would be "replace single pole, single throw light switch." With backup information shown on Exhibit D-1, the Bench Mark Analysis Sheet, it is easy to determine the exact job content, tools used, and additional reference information for this specific job. *A technique called job content comparison allows the analyst to cover a wide range of jobs that have two wires, two mounting screws, and two cover plate screws. For example, a temperature control thermostat would be slotted with a Standard Work Group A based on the example shown.

DAP 420-5 requirement for identification of each job renders the system too inflexible. Either a standard is required for each detailed job, a formula chart or table is required, or there will be a large number of estimates assigned to jobs. An estimate is an individual's opinion of the time required for a job. When a system combines estimates and engineered work standards, efficiency as a basic control tool is compromised.

In summary, standards in DAP 420-5 as compared in application with an industrial system:

*This Bench Mark Analysis Sheet is used to establish credence in the standards and is only used when testing or establishing the standards.

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BENCH MARK ANALYSIS SHEET

CODE 0790

Description		Replace single pole, single throw light switch		Date: 6/5/xx	BM # 0790-01	
				Craft: Electrical		
				Dwgs: - - -		
		No. of Men	1	Analyst: WJM	Sh. 1 of 1	
Line	Men	Operation Description	Reference Symbol	Unit Time (.0001)	Freq.	Total Time (.0001)
1		Handle screwdriver (belt kit)	05.0006			12
2	*	Remove 2 cover plate screws (cover plate normally	06.0101	36	2	72
3		falls away from wall with removal of second				
4		screw)				
5		Lay aside cover plate and 2 screws	04.0102			11
6		Remove 2 switch mounting screws	06.0001	36	2	72
7		Aside 2 screws	04.0102			11
8		Pull switch clear of box	12.0002			7
9		Loosen 2 screw connections	06.0104	16	2	32
10		Disconnect or free 2 leads	12.0003	10	2	20
11		Lay aside and obtain new switch	04.0102			11
12		Loosen 2 lead screws in new switch	06.0104	16	2	32
13		Handle pliers -- once for each lead	05.0006	12	2	24
14		Straighten end of 2 leads	06.0404	10	2	20
15		Assemble lead around screw	12.0003	10	2	20
16		Loop lead around screw	06.0404	10	2	20
17		Handle screwdriver -- once for each lead	05.0006	12	2	24
18		Tighten 2 lead screws	06.0104	16	2	32
19		Bend 2 leads and push switch into box	12.0003	10	2	20
20		Get 2 switch mounting screws	04.0102			11
21		Assemble 2 switch mounting screws	06.0101	36	2	72
22		Get cover plate and 2 mounting screws	04.0102			11
23		Place cover in position	12.0002			7
24	*	Assemble 2 cover plate screws	06.0101	36	2	72
25						
26						
27		*Adjust if cover plate has 4 screws				
28						
29						
30						
Notes.			Bench Mark Time		.0613	
			Standard Work Group		A	

- Are more difficult to associate with jobs because job content of the standards is not shown
- Do not clearly identify jobs using maintenance service orders that require less than 16 hours or \$200
- Do use the nomograph technique for IJO's effectively if the job content is known and the job can be located in the appropriate tables
- Are more difficult to find and apply when MSO work performance standards from Table V are required. This requirement is for jobs up to 16 hours, but the maximum craft time for a job shown is 1.25 hours.

D. Accuracy of Standards

In order to determine the relative values of standards for like jobs, a number of typical jobs were identified in DAP 420-5 and times compared with UMS. Only jobs that had a high probability of identical work content were used. The standard craft times were compared without allowances for travel, job preparation, or personal allowances. A comparison list is shown in Exhibit D-2.

The craft standards are comparable as far as this review has been developed. Again, job content is not available for DAP 420-5 standards. In most instances, the UMS standards are slightly tighter. The distinguishing difference in the approach to developing standards in the two systems is the fact that UMS develops or validates data to fit a particular plant or organization rather than using common data at all locations. In this respect local adjustments are allowed in DAP 420-5, but the method of adjusting is left to the discretion of the local installation. This mixture of data cannot be very reliable.

As far as can be determined, the standards used by the post engineers are comparable with industry. DAP 420-5 standards are more difficult to use due to the great number of standards. The maintenance of the standards is extremely difficult because at post engineering level, the job content is not fully known. Standards that are not maintained and updated as methods, tools, etc., change soon cease to be of significant value.

EXHIBIT D-2 COMPARISON OF PERFORMANCE STANDARDS -
DAP 420-5 AND UMS

Job	Standard Times (Hours)		
	DA 420-5	UMS	
		Actual	Bench Mark
1. Replace faulty wall switch	.3	.063	.1
2. Replace fluorescent fixture	.5	.0318	.1
3. Replace faucet washer	.2	.0936	.1
4. Repair commode (unistop)	.3 ⁽¹⁾	.0275	.1
5. Cut, ream, and thread pipe, both ends, by hand up to 1" ID, 10 pieces	1.8	1.78	2.0
6. Cut, ream, and thread pipe, both ends, by hand 1-1/4" to 2", 10 pieces	2.0	2.31	2.0
7. Fabricate 1-3/8" x 2'8" x 6'8" door	1.9	2.1	2.0
8. Install plywood gypsum board or masonite 4' x 8' sheer, obstructed	.43	.36	.4
9. Install hydraulic door closer	.3	.2	.2

Note: (1) Job content questionable.

E. Allowances

Work performance standards represent the time to do a job at job site. Allowances must be established for various types and different elements of jobs covered by standards. Allowances are the times added to the standards to allow for conditions not accounted for in the basic standards.

There are two basic types of allowances. One type is identified as an integral part of any job and does not normally vary once established. Included in this type are:

- Travel
- Job preparation
- Balancing delay
- Personal
- Unavoidable delays
- Progressive job planning

The last three are generally lumped together as a factor varying from 15 to 20 percent in industry. UMS standards recognize balancing delay in developing craft time, and therefore do not need to consider this delay in allowances established. Allowances in DAP 420-5 are established for MSO tasks as 10 percent of total of craft time, travel, and job preparation. For IJO jobs, craft allowances are contained in Table I. The allowances vary from 16 percent for one-man custodial services to 28 percent for one-man electrical maintenance. For multiman jobs the allowances vary from 18 percent for custodial services to 44 percent for machine mixing concrete.

In addition to the above, industry recognizes another type of allowance for nonproductive elements that varies over time due to changing workloads, scheduling techniques, or method changes. Among the elements for this type of allowance are job interruptions, restarts and unfavorable working conditions. These allowances are actual extra time allowed and are added to the normal total standard developed for a job.

Travel time in the two systems is developed similarly.

Job preparation allowances are considered differently. In DAP 420-5 job preparation varies by craft activity and does not include a

degree of difficulty. UMS recognizes three levels of job preparation-- simple, average, and complex.

The methods of application of allowances to craft time in order to arrive at job standards are comparable.

Job Standard Time = (Craft Standard Time + Travel Time + Job Preparation Time)

X (1 + Allowance Time Expressed as a Decimal)

In evaluation the total effects of allowance on job standards in industry and in DAP 420-5, the travel time is held constant at .35 hours, and the job standard is considered equal in each system. Exhibit D-3 shows the results. In computing DAP 420-5 times, the above formula was used for jobs A to E and the nomographs were used for jobs F to K.

The comparison reveals that job standards will be about the same for post engineering standards and industry if the complex factor is used for job preparation in the UMS system. In other words, allowances are comparable and differences are accounted for in the different methods for handling balancing delays. UMS does not recognize this delay as it is included in the craft bench mark standard. Again as in the basic standards, the DAP 420-5 allowances are slightly higher.

F. Other Items Analyzed

This comparison of standards would be incomplete without considering the following:

- Use of standard data as a management tool
- Types of input data required
- Types of control reports produced

The work management system as described in DAP 420-6 contains these basic elements for scientific management.

- Organization
- Work order system
- Planning and scheduling
- Stores control

EXHIBIT D-3 COMPARISON OF ALLOWANCES - DAP 420-5 AND UMS⁽¹⁾

<u>Job No.</u>	<u>Craft Time</u>	<u>DAP 420-5 Std. Hrs.</u>	<u>UMS Std. Hrs.</u>
A	.1	.94	S ⁽²⁾ .6 A .7 C .9
B	.2	.98	S .8 A .9 C 1.1
C	.4	1.32	S 1.0 A 1.1 C 1.3
D	.7	1.73	S 1.4 A 1.5 C 1.9
E	1.2	2.37	S 2.0 A 2.1 C 2.3
F	2.0	w/nomograph 3.0	S 2.9 A 3.0 C 3.2
G	3.0	4.0	S 4.1 A 4.2 C 4.4
H	4.0	5.6	S 5.3 A 5.4 C 5.6
I	5.0	7.0	S 6.5 A 6.6 C 6.8
J	6.0	8.5	S 7.7 A 7.8 C 8.0
K	7.3	10.1	S 9.3 A 9.4 C 9.6

NOTES: (1) Travel = .35 hours, job prep = .3 hours, carpenter allowances = 26 percent.
(2) S = simple, A = average, C = complex.

- Preventive maintenance
- Measurement (standards)
- Analysis

It is in the last area of analysis that the management system can be faulted from an industrial point of view. For standing operations, such as plant operations, nonplant standing operations, fire prevention, and protection, the methods for analysis are comparable with those of industry.

However, in the analysis of service order jobs as described in paragraph 70, DAP 420-6; individual job orders as discussed in paragraph 71, DAP 420-6; and evaluation of PM as shown in figures 33 and 34, page 64, DAP 420-6, there are areas of differences.

1. Building PM Performance Analysis¹

The type of analysis of PM is questioned. In the relative ranking of teams, the following comments are offered:

- Labor Hours - The ranking is proper using efficiency as a basis.
- Supplies Issued - This ranking appears to promote waste of materials since higher material cost/PM hour ratios receive higher ratings. Material requirements should be considered independently of labor control.
- Service Orders Issued to PM Areas - This ranking appears to be steering away from detailed control of smaller jobs but, based on local conditions may or may not be meaningful.
- Job Order Requests Initiated - The ranking here is based on total JOR's initiated by the PM team. It would appear that this ranking will promote passing jobs up to the craft shops and work against the basic objectives of PM, to prevent jobs becoming large by deferring minor repairs.

¹ See DAP 420-6, Figures 33 and 34, p. 64.

2. Service Order Jobs¹

These are "smaller maintenance and repair or minor construction jobs (less than 16 hours or \$200)---. Because of the small size of each job---, the analysis of each individual Service Order should not be attempted."

The industrial approach to management control provides that all jobs be controlled. Where possible, predetermined work segments are used to reduce the number of orders processed and are similar to the standing operating jobs described for post engineers. But in the approach to MSO's, industry treats these similarly to the IJO's. By using the UMS concept, 85 to 90 percent of all jobs can be preapplied using standards.

By collecting actual worker hours for each job planned, scheduled, and completed, a meaningful control information system can be initiated. Analysis of MSO's and IJO's would be the same and would be the basis for a management system with these basic control elements.

- Performance - The measure of how well the unit is performing with respect to the standards.

$$\text{Efficiency (\%)} = \frac{\text{Total Standard Hours Applied}}{\text{Total Actual Hours on Applied Jobs}} \times 100$$

This applies only to jobs closed, and weekly analysis is considered appropriate.

- Coverage - The measure of what percentage of the work is being done against the predetermined standards.

$$\text{Coverage (\%)} = \frac{\text{Total Actual Hours}}{\text{Total Actual Hours on Standard Hours}} \times 100$$

The objective here is to achieve at least 85 percent in order to develop confidence in the accuracy of the performance data. This also provides meaningful information on efforts of the analyst.

¹ See DAP 420-6, par. 70.

- Delay Time - The measure of delays, not the fault of the worker.

$$\text{Delay (\%)} = \frac{\text{Delay Hours}}{\text{Total Hours Recorded}} \times 100$$

A coded reporting technique which identifies causes is a valuable tool. For example, the following codes are suggested:

- D-1 Waiting on material
- D-2 Waiting on instructions
- D-3 Waiting on facilities availability
- D-4 Waiting on safety
- D-5 Miscellaneous

- Backlog - The measure of total work outstanding expressed in man-hours and calendar weeks.
- Distribution of Time - The amount of time spent on different types of maintenance or construction activities. For example:
 - Repairs
 - Improvements
 - Emergencies
 - PM
 - Construction
- Cost per Standard Hour - The total measure of maintenance efforts. Computation is shown in Exhibit D-4. An information system that provides the above control reports will permit the charting of trends in the basic areas requiring controls. Other reports originating from the same input data can be locally determined and used for detailed analysis and improvements.

Each level of management using the control reports above could maintain a minimum but essential set of trend charts as shown in Exhibit D-5.
- Local Allowance Factor - Each of the performance standards tables in DAP 420-5 has a column for local allowances. The

EXHIBIT D-4 CHART FOR COMPUTING CONTROL INDICES

Craft: Carpenter												
Actual Hrs.				Credit Hrs. (Std. Hrs.)								
Name	On Std.	Off Std.	Delay	Total	On Std.	Off Std.	Total	% Efficiency	% Cover- age	% Delay	\$ Labor Cost	\$ Cost per Std. Hr.
	A	B	C	D + B + C)	E	F (B x H)	G (E + F)	H (E/A)	I (A + B)	J (C / D)	K (D x Ave. Wage Rate(1))	L (K / G)
Jones	32	6	2	40	20	4	24	63	84	5	160	6.70
Brown	30	5	5	--				--	--	-	--	--
Total	300	80	20	400	210	56	266	70	79	5	1,600	6.00

Note: (1) Assume \$4.00/hr. wage rate.

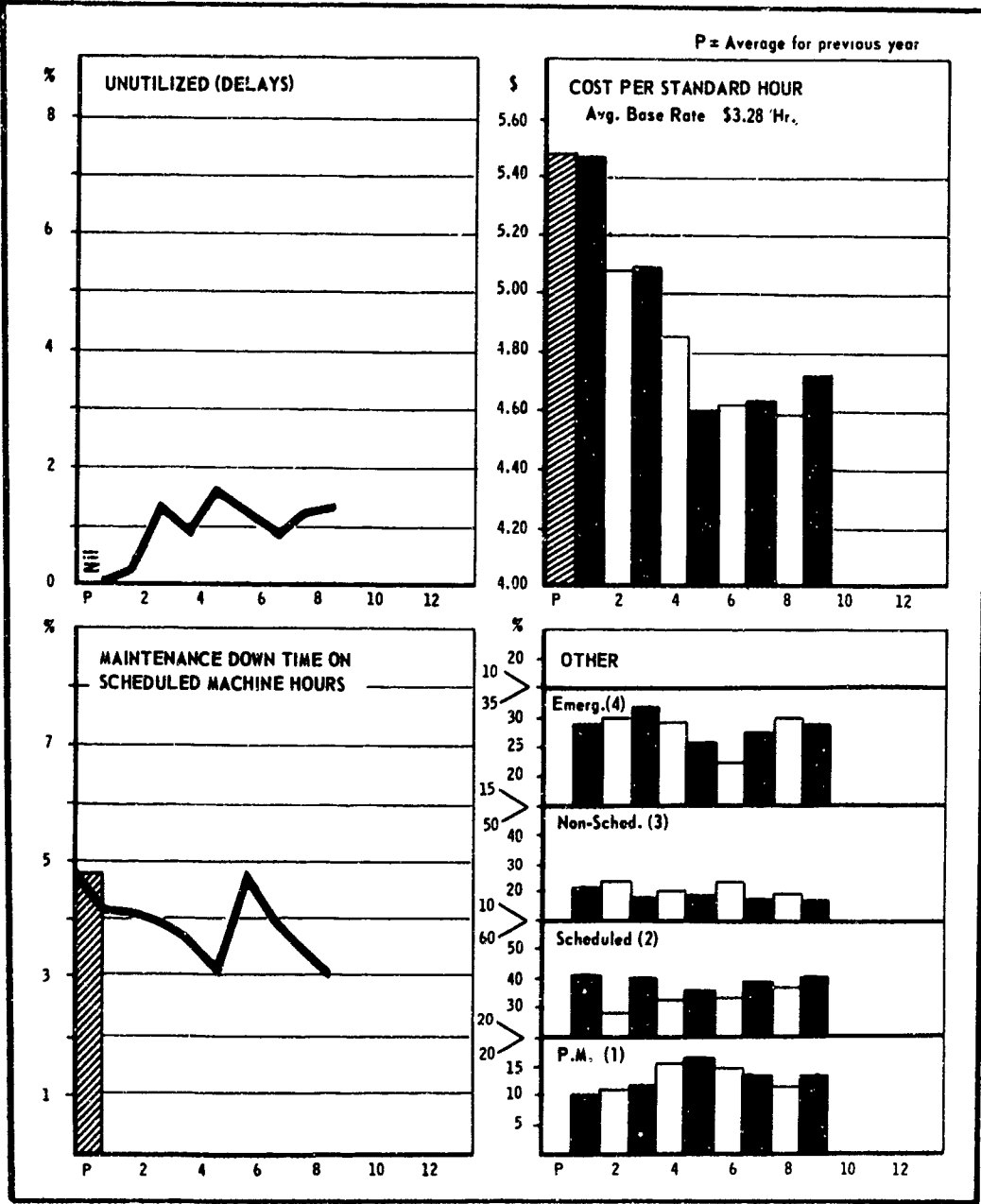


EXHIBIT D-5 POST ENGINEER CONTROL DATA GRAPHS

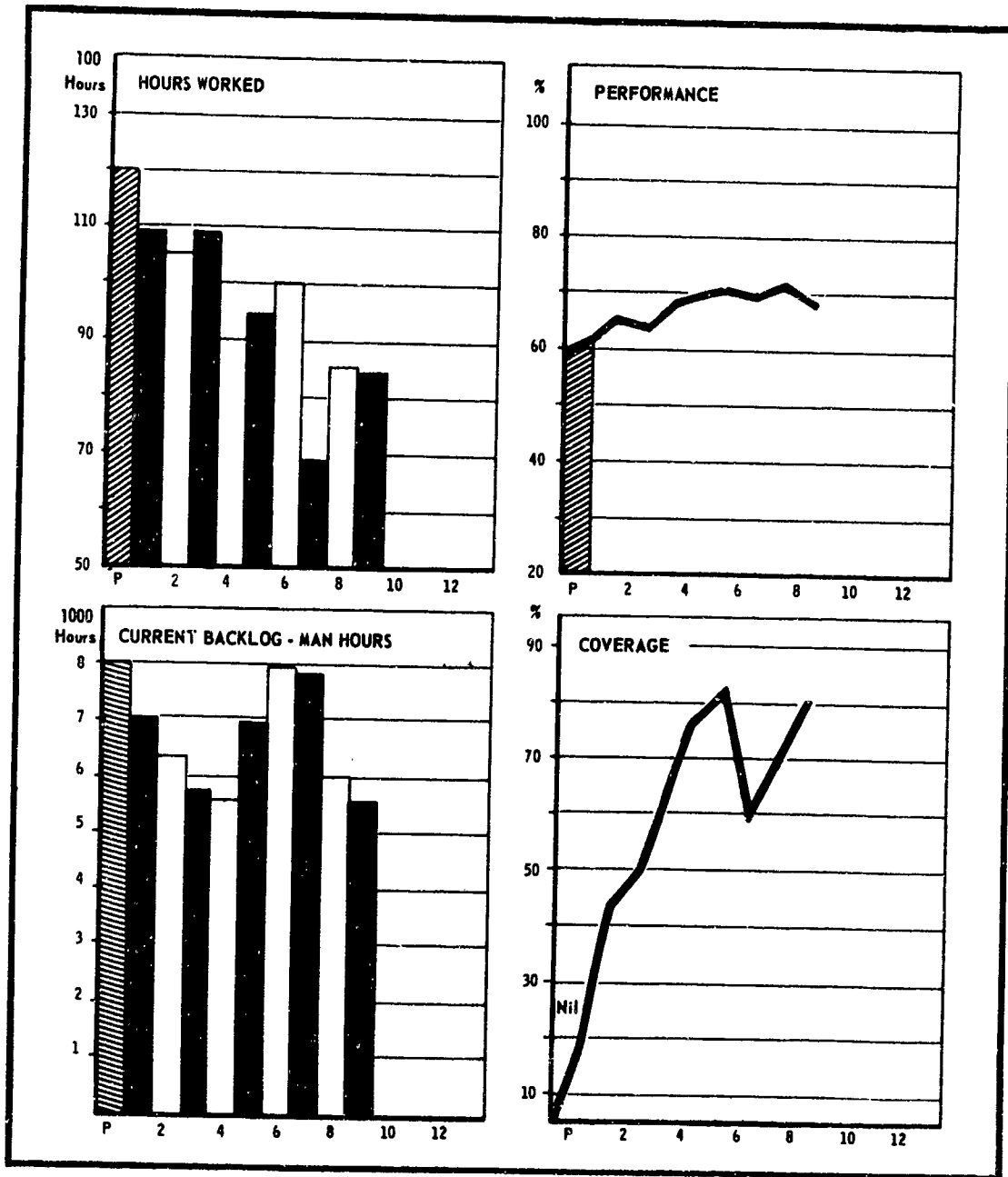


EXHIBIT D-5 (Continued)

local allowances are added to the standard to produce a local standard. Industrial practice treats this situation as an allowance to be applied where needed. In this manner the work content of a job remains the same for a certain method with specific tools. It is felt that to alter the standard without identifying the change in the job content leads to the overall deterioration of the system.

G. Conclusions

The total works management system as viewed from an industrial viewpoint is sound. As related to work standards contained in DAP 420-5, it is concluded that:

- Application is difficult or perhaps impossible if an acceptable coverage of 85 percent is to be achieved.
- Standards are reasonably accurate compared with industry.
- Allowances are slightly higher than established in industry.
- The absence of job content for standards established can result in early dilution of confidence in standards.
- Standards available in tables are not oriented towards a large number of jobs of less than 16 hours.
- Local allowances should be removed from performance standards tables, and if requirements exist locally, the requirements should be considered as allowances.
- Standards are not being utilized to produce control reports deemed necessary for comparable activities in industry.
- Finally, minor changes in the management system with a more sophisticated yet simpler system of developing and using performance standards will greatly improve control of post engineering repairs and utilities activities.

APPENDIX E

WORK PERFORMANCE AND COVERAGE¹

As a general rule, experience indicates that high levels of productivity exist when sound measurement and control tools are used by management. Where measurement is absent or unresponsive to management requirements, productivity levels vary considerably and are dependent upon individuals rather than management design.

The use of labor standards in DAP 420-5 provides us with an excellent base to measure performance of the work force. This performance figure will establish our present efficiency against these standards, highlight shop areas that should be reviewed and provide a base from which future realistic goals on performance can be set.

Labor performance is computed by dividing the standard hours (redetermined from DAP 420-5 - not estimated) set for a period of time (usually a week) on completed orders by the actual hours taken to complete these orders. A low performance figure for a shop indicates attention is required on the part of the foreman to determine the causes, such as delay, poor tools, methods, etc. His corrective action should have an immediate effect on the performance figure.

In order to establish confidence that the performance figures generated above are representative of the whole work force, 80 to 85 percent of the work performed must be covered by predetermined labor-time standards from DAP 420-5. This coverage percentage is the number of man-hours in a shop that were expended on work orders that had predetermined time standards established, divided by the total number of available man-hours in that shop over the same period.

¹ See introduction, p. D-1.

APPENDIX F
GROUPS OF SIMILAR FACILITIES

Listed below are the "groups of similar facilities" developed for use in the RPMA system design. Associated with each group are the appropriate Facility Classes and Construction Categories Codes (FCCCC). These groups are included as data use identifiers associated with functional category 10, Maintenance of Real Property.

Groups of Similar Facilities

<u>Buildings - Total</u>	<u>FC</u> ⁴
Troop Housing	720
Barracks	721, 722, 724
Mess Halls	72310, 72340
Other	723, 725
Family Housing	710
Capehart	71120
Wherry	71130
Foreign	71140
Other	71110, 71160
Community	730, 740
Personnel	730
Recreation	740
Operational	130, 131, 133, 141
Training	171
Maintenance	210
Production	220
RDT&E	310
Storage	400 (-450)
Liquid	410
Ammunition	420
Cold	430
Covered	440
Medical	500
Hospitals	510
Other (Incl. Dispensaries)	520, 530, 540, 550
Administrative	600
Other	
Inactive	

Surface Improvements

FC⁴

Roads - Total	851 (-)
Airfield Pavements - Total	110
Parking, Open Storage & Walks	85210, 85220, 450
Railroads	860 (-)
Bridges	85120, 85230, 86030
Waterfront Facilities	150(-), 160(-), 213, 223
Waterways	15950, 15960, 165
Misc. Structures	
Inactive	

Grounds

Improved	871, 750, 932
Semi-Improved (Less Ranges)	
Unimproved (Less Ranges)	179(-)
Ranges	179(-)
Wildlife Conservation	
Inactive	

Utilities

Water Systems	840
Filtration and Treatment Plants	
Pumping Plants	
Distribution Mains and Services	
Sewage Systems	830
Treatment Plants	
Primary	
Secondary	
Tertiary	
Septic Tanks	
Oxidation Ponds	
Sewage Lagoons	
Industrial Wastes	
Pumping Plants	
Collection Systems	

	<u>FC</u> ⁴
Electrical Systems	810
Substations and Switching Stations	
Generating Plants	
Distribution Systems	
Overhead Lines	
Underground Lines	
Distribution Transformers	
Exterior Lighting	
Cooling Systems	890
Air Conditioning Plants	
Over 100 Tons Capacity	
25 to 100 Tons Capacity	
5 to 25 Tons Capacity	
Less Than 5 Tons Capacity	
Refrigeration Plants	
5 to 25 Tons Capacity	
Less Than 5 Tons Capacity	
Cold Storage Plants	
Ice Manufacturing Units	
Heating Systems	820
High Pressure Boiler Plants (Over 3.5 Mil BTU)	
Gas Fired	
Oil Fired	
Coal Fired	
Heating Plants (Over 3.5 Mil BTU)	
Gas Fired	
Oil Fired	
Coal Fired	
Heating Plants (0.75 - 3.5 Mil BTU)	
Gas Fired	
Oil Fired	
Coal Fired	

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FC⁴

Other Heating Support

Steam and Hot Water Distribution
Systems

Gas Distribution Systems

Other Utilities

APPENDIX G

CONSULTATIONS AND VISITS

1. During the month of September 1969, the RPMA design team visited the following agencies to obtain information concerning their requirements for RPMA data.

<u>Agency</u>	<u>Purpose</u>
Office of the Chief of Engineers	
Mr. Blake	Buildings and Structures
Mr. Brett	Buildings and Structures
Mr. Byrnes	Refrigeration and Air Conditioning
Mr. Cary	Custodial
Mr. Davison	Fire Prevention and Protection
Mr. Dews	Entomology
Mr. McGough	Roads and Railroads
Mr. Miller	Land Management
Mr. Norwood	Refuse Handling
Mr. Norwood	Water and Sewage
Mr. Rimmer	Buildings and Structures
Mr. Shoenian	Heating
Mr. Snell	Utilities
Mr. Stephens	Buildings and Grounds
Army Materiel Command	
Mr. Brenneman	Facilities Management
Mr. Curtiss	Facilities Management
Mr. Michalowski	Facilities Management
Office of the Surgeon General	
Major Peacock	Facilities Management
Office of the Chief of Research and Development	
Lt. Col. Paquette	Facilities Management

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<u>Agency</u>	<u>Purpose</u>
Military Traffic Management and Terminal Service	
Lt. Col. Nelson	Facilities Management
Mr. Barrows	Facilities Management
Mr. Hatch	Facilities Management
Army Security Agency	
Mr. Franklin	Facilities Management
Mr. Sharrett	Facilities Management

2. During the month of October 1969, RPMA design validation visits were made to the following headquarters and installations.

	<u>Headquarters</u>	
USCONARC	Engineer Division DCSLOG, Comptroller	Fort Monroe
USAMC	Installations and Services Agency	Rock Island Arsenal
USASTRATCOM	Engineer Section, Management Information Systems Directorate	Fort Huachuca
ARADCOM	Engineer Division DCSLOG	Colorado Springs
Western Area Command (MTMTS)	Directorate of I&S Post Engineer	Oakland Army Base
Weapons Command (AMC)	I&S Directorate	Rock Island Arsenal
Fourth U.S. Army	Engineer Section Comptroller	Fort Sam Houston
Sixth U.S. Army	Engineer Section G4 Comptroller Post Engineer (PSF) Letterman General Hospital	Presidio of San Francisco

Installations

Post Engineer, G4 (I&S), Comptroller

Letterkenny Army Depot, Pennsylvania
Sharpe Army Depot, California
Red River Army Depot, Texas
Aberdeen Proving Ground, Maryland
Yuma Test Center, Arizona
Fort Devens, Massachusetts
Fort Ord, California
Fort Bliss, Texas
USMA, New York
Vint Hill Farms Station, Virginia
Two Rock Ranch Station, California
Rock Island Arsenal, Illinois

Representatives from OCE, USCONARC, and USAMC, as appropriate, accompanied the visitation teams to the installations.

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13. ABSTRACT This document is a follow-on of the Real Property Maintenance Activities (RPMA) Module Analysis for the Integrated Facilities System (IFS). (See report R-1209, Volume II, Part 2)(AD 896272L). This document constitutes the design of the RPMA functional area of facilities management for all funding sources at all Army echelons from installation through Department of Army. The design incorporates five new reports: Unconstrained Requirements Report, Financed/Unfinanced Requirements Report, Summary Annual Work Plan, Mid-Year Review Report, and a Prior Year Performance Report. These reports will permit facilities management in the RPMA functional area through planning, programing, budgeting, execution, and review, and will coincide with, and allow detailed consideration of RPMA requirements in, the Five Year Defense Plan for the Army. Included is an overview of the total Integrated Facilities System, and then an overview of the RPMA module design. Specific details on data source flow/disposition is contained in a companion document, R-1209, Volume II, Part 3, Section IV. (U)																							
14. KEY WORDS <table border="0"><tr><td>Budgeting</td><td>Logistics Planning</td><td>Readiness</td></tr><tr><td>Decision Making</td><td>Logistics Readiness</td><td>Requirements</td></tr><tr><td>Facilities</td><td>Maintenance</td><td>Real Property</td></tr><tr><td>Facilities Management</td><td>Management Engineering</td><td>Systems Analysis</td></tr><tr><td>Information Systems</td><td>Management Planning</td><td></td></tr><tr><td>Logistics Management</td><td>Management Systems</td><td></td></tr><tr><td>Logistics Operation</td><td>Military Facilities</td><td></td></tr></table>			Budgeting	Logistics Planning	Readiness	Decision Making	Logistics Readiness	Requirements	Facilities	Maintenance	Real Property	Facilities Management	Management Engineering	Systems Analysis	Information Systems	Management Planning		Logistics Management	Management Systems		Logistics Operation	Military Facilities	
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